

BC 48-1 - BC 48-3

COL. LEE O. MILES
COLLECTION

Collection and Notebooks (Field
Notes) received April 1963
from Dr. Joel W. Hedgpeth, Director,
Pacific Marine Sta., Dillon Beach

[Signature]

Collection '48 - 1 *

ENSENADA, B.C.
La Playita

March 22nd, 1948.

Taken on rocks of point just north of La Playita, about
two miles north of Ensenada.

Collected:

Thais emarginata,

Star Fish - *Pisaster giganteus capitatus*.

Acanthina scabra, Nuttall.

Octopus bimaculatus, 2 1/4" across.

Cuttle Fish, 1' long.

Eel, 30" long.

Crayfish, 8" long; juvenile. *Panulirus interruptus*.

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Collection '48 - 2

ENSENADA, B.C. •
La Playita

March 23rd, 1948.

Taken on same point as above, but further out as well.

Collected: *Acanthina lugubris*, G. S.

Norriassia norrisii; green at umbilicus.

Wavy Top Shell; *Astraea undosa*, Wood.

Tegula. *T. gallina*, G. S.

Collector,

Lee O. Miles

~~* Series "EN" on labels (G.S.)~~

* For Series "EN" on labels, see pp. 31-39.

Collection '48 - 3

ENSENADA , B.C.
La Playita

March 24th, 1948.

Taken on rocky point at La Playita, several miles north of
ENSENADA, same as 2 previous collections, but continuing
further north to more exposed (to open sea) beach; still
rocky, but with much washing loose fine sand.

Collected :

Mussels
Haliotis fulgens
Acmaea pulex, *Mutilla*
H. cracherodii

Same as before.

Collection '48 - 4ENSENADA, B.C.
South sand beach.

March 25th, 1948.

Taken on bay beach of clean fine sand, open to swells from
SSW and West, wide and hard packed.

Collected:

Wedgies

Pismo, small only. Tivela stultorum.

Cup and Saucer Limpets ; Crucibulum sp. *spinosa*

Pecten valves

Cockles,

Shells, washed ashore fr. offshore rocks -
Crepidula onyx
Notosaria prostrata?
Mussel - bearded - 1"
Ligula
Acanthina ligularis

Collector,

Lee O. Miles

BC 49-1 - BC 49-7

Collection '49 - 1

ENSENADA, B.C.
San Quentin -
Laguna Santa Maria.

April 5th, 1949.

Taken on wide, hard sandy beach, clean, exposed to open sea.

Duxia californica with crab.
 Collected: *Crepidula perforans*, Valer.
 Pismo Clams - *Tivela stultorum*; many washed ashore.
 • *Turritella cooperi*, Carp.
 Mussels - shell long, clean.
Macoma indentata, Carp.
 Mussels, - shell long, bearded.
Nassarius fossata, Gould.
 Triton? - alive; orange with black stripes on body.
Acmaea conus, Juv.
 Barnacles, red; *Balanus concavus pacificus*, Pilsbry.
Turritella cooperi, Carp.
 Also 2 ducks; should have had 6.

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Collection '49 - 2

ENSENADA, B.C.
La Playita, N.

April 6th, 1949.

Taken on rocky beach north of La Playita, several miles north of ENSENADA; open to sea.

Collected: *Mytilus adamsianus* - Flat mussel, compressed.
 Tegula
Pseudochama etozya, Conrad.
 Littorines
Pseudonelotoma
Acmaea sp.

Lottia gigantea.

 Volcanoe Keyhole Limoet.

 Brittle stars, 3 species.

 Leather Star.

 Chitons, various.

 Thais sp.

Chama pellucida, Sbr.Collector,
Lee O. Miles

Collection '49 - 3
A & B.

ENSENADA, B.C.
San Quentin Mole.

April 8th, 1949.

A. Taken on sandy clam flats under and on the old pier at the old English Colony.

Collected:

On flats: *In mud, 3' - Cerithidea californica, Hold.*
Pismo clams, a few; Tivela stultorum.

Macron kellestii, ^{lividus?} Adams. With much Algal growth on them: *M. lividus, Adams?*

On steel piers of steel rails;

Mussels

Ostrea lurida lepicandata, Arg.

Sponges, especially an orange-yellow.

B. At old mill, on rough lava:

Barnacles, large red - Balanus concavus pacificus, Pils.

Chitons, several.

Crucibulum sp. *C. spinosum*

• Acmaea limatula, File Limpet. *Cargenter*

Oysters.

Collector,

Lee O. Miles

Collection '49 - 4

ENSENADA, B.C.
Laguna Santa Maria, S.

April 9th, 1949. 4 10th

Collected along sandy to cobbled beach from LAGUNA SANTA MARIA
south as far as wide beach extends.

Collected:

Olivella on sand bar exposed at low tide.

Small spiral purple shells. *Macron lividus*, A. Adams
~~Nassarinus fossatus~~, Gould.

~~Nassarinus?~~ *Cochlostoma gemmatum*, Carp.

~~Buccina~~ *californica*, Hinds.

Ostrea lurida lapicandata, Carpenter
Hermit crabs in various kinds of shells.

Pismo clams near surface, breaking it. *Tivela stultorum*.

Sand dollars, with red barnacles. These in tide pool back of
sand bar exposed at low tide, buried flat to upright,
moving from 6" to 10".

Donax?, a few.

Clams with concentric lines; thin, large.

Venerupis sp.

Washed *Crepidula* sp.

Crabs, buried in sand. Near 0.0' tide mark.

Collector,

Lee O. Miles

Collection '49 - 5.

ENSENADA, B.C.
La Playita, N.

April 11th, 1949.

Collected on rocks and bedrock near cliffs near Point Light north of La Playita, several miles north of Ensenada. In Zones 1, 2 and 3. Surf and tide kept me out of Zone 4 until I fell in trying to get some barnacles.

Collected: *Pteropoda* (murex) *trialis*, Sbs
Purpura (*Pteropoda*) *nuttallii*, Conrad.

Haliotis cracherodii, Lisch

404 . Littorines. *Pseudomelastoma penicillata*

406 . *Littorina planaxis*, Phil.

Thais emarginata.

Murex lividus, Adams

Chitons, various species.

Acanthina penicillata, Adams

Lottia gigantea, Owl Limpet.

Acmaea limatula, File Limpet.

Ostrea lurida, Carp.

407 *Comus californicus*, Hines

Ocenebra paulsoni, Carp.

Purpura monacera, Sbs

404 . *P. (Pteropoda) nuttallii*, Conrad.

Collector,

Lee O.Miles.

Collection '49 - 6

ENSENADA, B.C.
San Ysidro - Pt Cabras.

April 14th, 1949.

Followed the main highway, paved, south from Ensenada to San Vicente; then turned west and followed a dirt "road" down San Ysidro River to the coast, crossing and recrossing the stream and irrigation ditches many times. The canyon widens near San Ysidro and the coast, and the road mounts to the coastal bench. Turn north past Punta San Ysidro with its blow-hole, to the cove inside (South) Punta Cabras. The rocky points north of San Ysidro are volcanic.

Collected : Zones 1, 2 and upper 3.

Haliotis cracherodii, plentiful. *Leach.*

Acanthina *Stearns*
Lottia gigantea, huge specimens.

Genivora *Stearns*
Achaea limatula, File Limpet.

Thais emarginata?, large. *Pedicular*.

Acanthina lugubris, *Stearns*.

Tegula brunnea

T. funebris

Tegula, white & brown markings.

Strongylocentrotus purpurea. Sea Urchin.

Mytilus sp.

Pisaster ochraceus.

Pisaster giganteus capitatus.

Note; saw no *Haliotis fulgens*, but saw many shells at fishermen's huts in village at mouth of San Ysidro.

Collector,

Lee O. Miles

Collection '49 - 7

ENSENADA, B.C.
San Ysidro, South.

April 15th, 1949.

To San Vicente, then west down the canyon of the Rio San Ysidro to near its mouth, where the road mounts north to the coastal plain, and a branch dirt road crosses the sandy arroyo to the coastal plain south of the river. Proceeded south on this road about two miles to a dry arroyo; walked down this arroyo to the beach. Nearly horizontal strata form the upper beach, dipping toward the sea, and much broken and undercut. The coastal plain is not over 25' above high tide mark. Below the rock upper beach, in places are small areas of clean sand.

Collected:

Zone 1 :
409 Littorines. *L. planaxis*, Phillipii

Zone 2 :
Turbans
Thais - *T. emarginata*, Reuch.

Zone 3, upper edge :
Lottia gigantea
Volcanoe keyhole limpet
Haliotis fulgens, Phillipii
H. cracherodii - Desch. -----
Megathura crenulata, Shy. Large keyhole limpet

Collection '49 - 8

ENSENADA, B.C.
La Playita, N.

April 18th, 1949.

Taken at rocky point just north of La Playita, described in other collections.

Taken: *Fimbrilia volcano*, Reene
Black Keyhole Limpet. *Megathura crenulata*, Shy

Haliotis fulgens, small.

Haliotis cracherodii.

Astraea?

Nonioides nonioides, Shy

Collector.

Lee O. Miles

BC 1 - 50 ((1950)) - BC 13-50

Collection BC 1 - 50

LA PLAYITA, B.C.

April 3rd, 1950.

Collected at LA PLAYITA, a small beach several miles north of
ENSENADA, BAJA CALIFORNIA; gravel to large boulders, roughly
worn, without much fine sand. Collected in Zones 1, 2 & 3.

Collections include:

Hoppers		
Clam, juvenile?		
Keyhole Limpet, brown rayed on white.		
Lamp shells	Specimen #	121
Shrimp	"	143
Coral ?	"	144
Chiton, large, blonde	"	148
Chiton	"	149
Chiton	"	150
Chiton	"	151 ✓ =
Chiton (Mopalia?)	"	152
Chiton ; small, reddish	"	153

Collector,

Lee O. Miles

Collection BC 2 - 50

SAN YSIDRO POINT
B.C.

April 4th, 1950.

Near the fishing village of SAN YSIDRO, BAJA CALIFORNIA, north
0.5 miles from the Point north of the mouth of SAN YSIDRO
CREEK. Among and on boulders on the rock beach, some large
gravel and little sand. In Zones 1, 2 and upper 3.

Collections include:

Keyhole Limpet, mantle covering most of it.
Rock Oyster, so-called. Worm.
Worm tubes with worms, attached to above.
Sipunculids with above.

Gastropod, medium, banded, toothed like Acanthina.		Specimen # 113
Littorina scutulata?		Specimen # 114
Amphissa	"	122
Keyhole Limpet, rayed	"	123
Compound Ascidea?	"	138
Shrimp	See BC 1	" 143
Chiton	"	158
Chiton	"	159
Chiton	"	160
Chiton	"	161

Collector

Lee O. Miles

Collection BC 3 - 50.

GOMEZ BEACH
B.C.

April 6th, 1950

Collected at GOMEZ BEACH, on a low reef down the valley west from Gomez Store and Hamilton Ranch at COLONIA VINCENT GUERRARO, BAJA CALIFORNIA. This reef is covered with loose boulders averaging about 12 to 20 inches in diameter, well-rounded, and with much sand. Zones 1, 2 & 3.

Collections include:

Conus shell
Isopod
Crab, black-tipped claws.
Acmaea paleacea on Eel Grass.
Shrimp

Octopus	Specimen #	111
Worms, dark green, in rocky tubes	"	131
Worm and tube	"	136
Crab	"	137
Isopod	"	139
Hoppers	"	140
White "bugs"	"	146

Collector,

Lee O.Miles

Collection BC 4 - 50

SAN QUENTIN BAY,
B.C.

April 7th, 1950.

Collected on the muddy sand flats at the old mole, on
SAN QUENTIN BAY, BAJA CALIFORNIA. Zones 1, 2 & 3.

Collections include.:

Crab, hairy	Specimen #	109
Snails, channeled, mud flat.	"	117
Cerithidium-like, small	"	118
Sponge, heavy mat	"	125
Sponge, erect	"	126
Shrimp, mud. Callianassa ?	"	127
Corymorpha ?	"	130
Chiton	"	162
Chiton	"	163
Chiton	"	164 ✓ =
Chiton	"	167 ✓ = <u>lepidozona</u> cf <u>Californiensis</u> Bony

Actaeon punctocoelata
Cerithidea calif.
Sea Anemone, tiny

Collector,

Lee O. Miles

Collection BC 5 - 1950

LA PLAYITA,
B.C.

April 8th, 1950

Collected on rocky beach north 2.0 miles from LA PLAYITA,
which itself is several miles north of ENSENADA, BAJA
CALIFORNIA. Collected in Zones 1, 2 & 3, among and on
boulders on solid rock, with little sand. Not lava.

Collections include :

Octopus	Specimen #	110
Gastropod, murex type	"	112
Gastropod, small white, murex type.	"	115
Macron	"	116
Worm	"	133
Comp. Asciidea?	"	134
Nudibranch (like Hermisenda)	"	135
Pisaster giganteus capitatus	"	147

Rock Oyster

Nudibranch

Acmaea

Starfish other than above.

Collector,

Lee O.Miles

Collection BC 6 - 50

LA PLAYITA, B.C.

Aprl 10th, 1950.

Collected 2.5 miles north of LA PLAYITA, which is several miles north of ENSENADA, BAJA CALIFORNIA; on and under loose boulders on a reef, with little sand.

Collections include:

Nudibranch - like Hermissenda	Specimen #	101
Nudibranch - brown	"	102
Crab, heavy claws	"	103
Nudibranch, white	"	104
Ascideae	"	105
Kelp Crab	"	106
Hydroid on kelp	"	107
Shrimp	"	108
Sponge	"	132
Chiton	"	168
Chiton	"	169
Chiton	"	170

Thais emarginata DESCHAYES

- Octopus, juvenile
- Cling Fish
- Crab, black tipped claws
- Mitella
- Crab - like Mimulus
- Crab, hairy

Collector

Lee O.Miles

Collection BC 7 - 50

LA PLAYITA, B.C.

April 11th, 1950

Collected on and under loose boulders and in rock crevices
on rocky shore 1.0 miles north of LA PLAYITA, near ocean
beacon, about 3.0 miles from ENSENADA, BAJA CALIFORNIA.

Collections include:

Gastropod, turret type.	Specimen #	119
Gastropod, small, sculptured	"	120
Brittle star, arms bristled	"	175
Brittle star, banded,	" "	176
Brittle star, large, bands, brown.		177
Brittle star, small brown, smooth		178

Norrisia norrisii

Astraea

Pea clam (like wheat kernel).

Crab, long snout.

Worn gastropod (Murex gemma?)

Collected by

Lee O.Miles

Collection BC 8 - 50

SAN YSIDRO POINT
B.C..

April 12th, 1950

Collected 1.0 miles north of SAN YSIDRO POINT, which is at the mouth of SAN YSIDRO CREEK, west of SAN VICENTE, BAJA CALIFORNIA. In zones 1, 2 & 3, amongst boulders on rocky and much worn shore, with considerable fine sand.

Collections include:

Keyhole Limpet. See also BC 2.	Specimen #	123
Sponge	"	124
Hydroid	"	129
Hydroid	"	141
Caprellid	"	142
Shrimp	"	145
Chiton	"	171
Chiton	"	172
Chiton	"	173

Conus - worn
Pecten - juvenile
Isopod

Collected by

Lee O. Miles

Collection BC 9 - 50

CAMP CAMALU, BC

Collected April 14th, 1950

On a rocky beach in Zones 1 and 2, at the mouth of a large arroyo about 1.0 mile north of the old army camp in CAMALU ARROYO, which is 15 miles north of GOMEZ STORE at COLONIA V, GUERRERO. Loose rounded boulders lie on nearly horizontal strata of sandstone and limestone, with some fine sand and gravel.

Collections include:

Chiton	Specimen 165
Chiton	" 166
Keyhole limpet, rayed.	
Crepidula onyx	

Crawfish remains plentiful along this beach. It would be an interesting beach to collect on if tides were favorable.

Collected by
Lee O. Miles

Collection BC 10 - 50

LAGUNA SANTA MARIA
B.C.

April 15th, 1950

Collected on the flat sand beach opposite and south of
LAGUNA SANTA MARIA, which lies several miles south of
SAN QUENTIN BAY. A beach of the Salmon Creek or Oceano
type; but at its southern end, becoming gravelly.

Collections include:
Shells only.

Crepidula onyx
Macoma sp.
Haliotis fulgens
H. cracherodii
Tivela stultorum

Collections ~~XXXXXX~~by

Lee O. Miles

Collection BC 11 - 50

PORTO SANTO TOMAS
B.C.

April 16th, 1950

Collections made south of the village at the mouth of
RIO SANTO TOMAS, on and among the rocks and boulders
of a badly eroded headland of conglomerate.
In Zones 1 and 2 only.

Collections include:

Chiton, large

Specimen # 154

Chiton

" 155

Chiton

" 156 ✓ = Nuttallina fluxa (Cpr.), l.

Chiton

" 157

Chiton

" 174

~~TEGULA~~ Tegula

Norrisii

Kelp Crab

Collector

Lee O. Miles

Collection BC - 12 - 50

CAMALU BEACH
B.C.

April 17th, 1950

Collected on conglomerate boulders lying on nearly horizontal strata at the foot of cliffs, at a point about 0.5 miles north of the area collected on Collection BC 9; about 1.5 miles north of the old army camp in ARROYO CAMALU, 15 miles north of COLONIA V, GUERRERO, HAMILTON RANCH.

Collections include:

In Zones 1 & 2 only.

Tegula gallina, Forbes

Chitons

Clams, small white.

Crab, small, snouted.

Crayfish, washed ashore.

Flat worms

Specimen # 128

Collector

Lee O. Miles

Collection BC 13 - 50

OCEANO BEACH
Calif.

April 22nd, 1950

Collected on the nearly flat sandy beach, well-packed, south
of the PISMO BEACH on OCEANO BEACH, CALIFORNIA.

Collections include:

Tivela stultorum ; many of these lying on wet sand, were
observed to right themselves and bury in the sand.

Sand crab

Jack-knife clam

Collector

Lee O.Miles

BC 14 - BC 23

1951 - 1951 (April)

Collection BC 14

Ensenada, B.C.
La Playita.

April 14th, 1951

9.00 AM - 11.00 AM

Low tide at 10.30 AM - 0.6'

No surf.

North of Light on point about 1 mile north of LA PLAYITA,
which lies about 2.5 miles north of ENSENADA, on main Highway.
On open Pacific coast, on boulders on base rocks, mostly lava,
with much washing sand from sand beaches in coves on both
sides of this point.
In Zones 2 & 3.

Collections include: *Ocenebra goulsonii*, Carpenter*Tezula gellina*Pugilid; male and female, mating. Male bright red, female
dark brown.

Patiria, small specimen.

Chama pellucida, Butler

Pisaster with large spots, short heavy 5 arms.

Pseudodurum etagyon, Conrad

Star fish with 5 long limber arms, dark red to brown.

Haliotis fulgens, blue abalone; small specimen. Philippi

Haliotis cracherodii, black abalone; small specimen. Leach

(Purpur) *Pteropis nuttallii*, Conrad*Acteocina* small specimen *A. undosa*, W. M.

Chitons

"

Lantern shell, small. *Terebratalia transversa*, Sby

Brittle Stars

"

"

Sponge, yellow, changed to purple in 95% Iso-propyl.

ALGAE.

Collector.

Lee O. Miles

Collection BC 15

ENSENADA, B.C.
Santo Thomas

April 15th, 1951.

10.00 AM -- 12.30 PM

Low tide at 11.15 AM. 0.3' No surf.

Below switchbacks on highway entering SANTA TOMAS Valley from ENSENADA, west down SANTA TOMAS River to coast to village of fishermen north of mouth of river; thence north around a headland about $\frac{1}{2}$ mile to a camp spot at cliff top. On open Pacific coast, on solid rock overlain in spots by sand and boulders. Zones 2 & 3.

Collections include: *Chlamys* 9/4 *C. hastatus*, Sib. juvenile
Ocenebra

Haliotis cracherodii; many small to medium size. *Leach*

Haliotis fulgens: not plentiful.

Thais emarginata

Zonaria spadicea, Chesnot Cowrie. Z. 3, among boulders. *Swainson*

Gastropod, Murex like, spine.

Tegula funicularis, small specimen

Sea Anemone.

Brittle Stars, feathery arms, large.

Patiria, large.

Cucumaria, yellow

Nudibranch, small, plain yellow (Dorid)

Nudibranch, red. (*Hopkinsia rosacea*)

Norrisia, small. *N. norrisii*, Sib

Cyprea, small.

Murex livida

Acmaea asmi, (black)

Collector,

Lee O. Miles

Collection BC 16

ENSENADA, B.C.
San Ysidro

April 16th, 1951.

12.00 M to 3.30 PM

Low tide at 12.00 M. Little surf.

South from ENSENADA to SAN VICENTE, thence west down San Ysidro River, crossing and recrossing some many times, to coast; north from the small village north of the mouth of the stream for about $1\frac{1}{2}$ miles to a rocky point with a bird whitened islet; in the lee of this point in a small cove, in Zones 1, 2 & 3. An open abruptly rocky coast, here partially protected, on solid rock, of lava conglomerate and sandstone, in strata nearly horizontal; with much sand washing in;

"A" And further north beyond this point to a wide sandy beach open to the sea. Collected 4 miles north of SAN YSIDRO.

Collections include: From rocks of Point Cove: *Littorina funicularis*
Acanthina lugubris, Sh. *Petrisola carolinensis*, atypical.
~~*Thais lugubris*~~
~~*Littorina*~~ *Acanthina paucilirata*, Stearns
Lottia gigantea, Gray
Haliotis cracherodii, numerous, all sizes. Beach
Mytilus, many with -
Bryozoa on above
Compound Ascidea
Isopods
Volcanoe keyhole limpet. *Timus volcani*, Rees
Crabs, small, big claws.
Micron lividus, A. Adams

"A" From open sandy beach N. of Point.

Sand Crabs

Pismo clams

Donax

Sand Dollars, green, keyhole, circular

Cowrie shells.

Collector

Lee O. Miles

Collection BC 17

ENSENADA, B.C.
San Ysidro S.

April 17th, 1951

11.00 AM - 3.00 PM

Low Tide at 12.35 PM.

Moderate surf.

South from the mouth of SAN YSIDRO RIVER (See BB 16) for several miles to "FRIAR'S MINE", iron and lava; Open abrupt rocky coast; lava conglomerates and lava; deep water off much of the rocky points, with small sandy coves and narrow inlets, zones 1 & 2, then dropping abruptly to deep water. Strata nearly horizontal.

Collections include:

Worms, sandy tubes, on overhang of rock away from surf.

Acanthina lugubris, *sh* Laying eggs.

Thais *marginata* " "

Lottia gigantea *Gray* " "

Corralines, like Ming Tree.

" " leaf.

Rock Oyster

Goose barnacle

Collector

Lee O. Miles

Collection BC 18

Ensenada, B.C.
Colonia Guerrero

April 18th, 1951

11.00 AM - 2.30 PM

Low tide at 12.45 PM 0.0' Moderate surf

South on the main highway from ENSENADA, B.C., to COLONIA GUERRERO, Gomez Place and Hamilton Ranch; thence west down the valley of RIO SANTO DOMINGO to its mouth (apparently permanently closed by sand dunes, ending in a marshy lagoon) at SAN RAMON BAY.

Collected on boulder field of rounded boulders, with sand abundantly washed in . Boulders of assorted kinds, mostly hard and smooth, and loose; average diameter 12" - 18".

Collections include:

Rock Oysters

Isopods

Shrimp

Acanthina parvilinearis, Stearns
Tegula, striped. *J. gallina*, Forbes

Littorines; black

" green, end eroded.

Gastropods, striped.

Crepidula - *C. onyx*, Sowerby

C. adunca, Sowerby

Prothaca staminea, Conrad

Macra livida, A. Adams

Patiria

} 1 or 2 other species

Chitons

"

"

Crab, heavy claw, black tip.

Worms, build boulder like mass of cases.

Acmaea on Eel Grass.

Collector

Lee O. Miles

Collection BC 19

ENSENADA, B.C.
San Quintin Bay.

April 19th, 1951.

"A" 10.00 AM - 12.00 M

"B" 12.30 PM - 23.0 PM

Low tide at 1.10 PM 0.2'

Low surf.

South of ENSENADA on main highway, beyond Colonia V. Guerrero and Gomez Place to end of present grading of highway, then angling on dirt roads southwesterly to LAGOON SANTA MARIA.

"A" Beach at this point on both north and south, is a flat hard packed sandy beach, no boulders, backed by low blowing sand dunes. On main SANQUINTIN BAY.

"B" North to the old MUELLE (Mole) at ruins of old English colony, west of the end of present highway grade, on dirt road. Beach about the Mole is hard sand, with mud or silt overlaying it in some areas.

Collections include:

"A" In Zone 1 and upper Z. 2, mostly near High tide mark:
Mussels, ~~Mytilus~~ *Mytilus Californianus*, Conrad.
Tivela stultorum; being harvested commercially now. *Mame*
Kellestia? *Kellestia kellestii*, Forbes
Clam
Clam
Crepidula onyx, *Sowerby*
Balanus on Kellestia

"B" In Zones 1, 2 and upper 3. On sand-mud flats.
Sponge, in clumps in mud.
Sponge, white top.
Gastropod, brown, deeply channeled. *Macraea Kellestii*, Adams
Crepidula on above. *C. onyx* *Sowerby*

"C" On piles of old mole - steel rails.
Oysters
Sponge
Sponge
Bryozoa
Hydroids
Compound Ascidea.

Collector

Lee O. Miles

Collection BC 20

ENSENADA, B.C.
Santa Maria Lagoon.

April 20th, 1951.

Low tide at 1.40 PM; 0.4'.

South of ENSENADA on main highway past COLONIA V. GUERRERO and GOMEZ PLACE, past end of graded highway at entrance by dirt road to west to SAN QUINTIN BAY, to LAGUNA SANTA MARIA on main bay. Drove north 5 miles on flat sandy beach, well packed, to sandy point of not packed sand. Here this small sandy point encloses a cove to south, small; and a larger cove to north, this with deep mud banks and bottom.

Returned to Lagoon, then drove 8 miles southward. The flat and wide beach of packed sand gives way to a narrow belt of cobbles below steep alluvial cliffs. At 8 miles a point of loose boulders averaging better than 1.0' diameter, projects into the bay, and promises excellent collecting when the tide is right.

Collections were of dead shells only, at or near high tide mark.

At the sandy point north of the lagoon, many Tethys were left on shore near hightide mark.

Collector,

Lee O. Miles

Collection BC 23

ENSENADA, B.C.
La Playita.

April 25th, 1951. At low tide, sunrise.

Low tide 6.00 AM, -0.9' Low surf.

At rocky point just north of LA PLAYITA sandy beach, which is 2 miles north of ENSENADA. Loose boulders on bed rock on point exposed to sea, much washing sand, particularly on north side.

Collections same as for BC 24, below.

Collection BC 24

La Playita Point.

April 26th, 1951 5.30 AM - 8.30 AM

Low tide at 7.00 AM, -0.6' Low surf.

At same point as described and located above in BC 23.

Collections include:

Sipunculids, large, under boulders.

Chitons, many spawning.

"

"

^a
Astrea undosa, Wavy Top. *Worth*Haliotis cracherodii, *Leach*" fulgens, *Philippi*Murex, winged. *Pteromytilus* (Murex) *tricoloratus*, *Hinds*", or drills, plain. *Pteromytilus carpenteri*Norrisia norrisii, *Sowerby*

Spire shells, small, slender.

Clam, small.

Hydroids

Nudibranch

Worm, red, under boulder.

Encrustations on gastropods.

Ocenebra goulsoni, *Carpenter**Tegula aureostriata*, *Forbes*. *Orange umbilicus*.*Pteromytilus nuttallii* (*Purpurina*), *Conrad*.
Collector

Lee 0. Miles

BE 25 (ENI) - BE 35 (ENII)

Collection BC 25 (EN 1)

ENSENADA, B.C.
La Playita

May 2nd, 1952

Low Tide 10.15 AM, 0.5' High surf.

North of ENSENADA 2.5 miles, or $\frac{1}{2}$ mile north of LA PLAYITA,
just north of Light, on rocky coast, of boulders and bed-
rock of various kinds, especially lava; some sand.

Seev also BC 14, BC 23, BC 24.

Collections include:

Ischnochiton conspicuus, in various ages and sizes, in *
colonies on smooth rounded boulders.

Mopalia sp., large.

Chitons

Chitons

Acmaea patina ESCH. - blue inside, flattish.

Acmaea sp, ribbed small. *A. conus*Fissurella volcanos. *Reeve*.Lottia gigantea, *Woot.*

Haminoea virescens? Bubble Shell, small; in numbers in
Zones 1 & 2 with Algae around boulders, at edges of
pools, most numerous where sand and silt meet rock.

Haliotis cracherodii, small.

Haliotis fulgens, small. Beach well picked over.

Astraea undosa

Tegula gallina, speckled turban. - *Forbes*.

Acanthina?

Chama?

Intonalia $\frac{1}{4}$ *J. faveolata*, *Hinds*.

Collector

Lee O. Miles

* 5 full-grown *Stenoplax heathiana* Berry
1 " *conspicua* (Dall)

Collection BC 26 (EN 2) ENSENADA, B.C.
La Playita

May 3rd, 1952

Low tide 11.00 AM of 0.5' Heavy surf.

Collected on same site as in BC 26 and others, but also
in sanded area further south toward Light.

Collections include:

Totia gigantea, Gray
Mopalia

Ischnochiton conspicuus - small specimens.

Chiton

"

Bubble shells - *Haminaea* ~~F~~ *H. virescens*, Shy

Pecten valves

Acmaea

Acmaea

Acmaea

Haliotis rufescens, small. Area picked over by natives.

Haliotis cracherodii, small Area picked over, Leach

Acanthina?

Pterorytis nuttalli. (*Purpura*) Conrad.

Tegula ligulata?

Collector

Lee O. Miles

Collection BC 27 (EN 3)

ENSENADA, B.C.
Santo Tomas

May 4th, 1952.

Low tide at 11.30 AM. Surf moderate.

South along main highway to SANTO TOMAS VALLEY; at foot of entering switchbacks, dirt road down valley to west to lagoon at closed mouth; north along coast to Fish Camp south side of Santo Tomas Point. Collected on south of point; then returned to old camp site half way back.

Cliffs at both collecting areas, high and rocky except for upper 10 or 12 feet, which is alluvial. Immediate fore shore, gravel and cobbles, some sand. Most of intertidal zone is loose boulders on bed rock, much of which is exposed. Much conglomerate. See also BC 11 and 15.

Collections include: *Ocenebra paulsoni*, Carp. yellow inside, bands fine lines.

- Encrustations on Tegula
- Chama?
- Cowrie shell - *Zonaria spadicea*
- Haliotis cracherodii*; small to medium large. Leach
- H. fulgeas*; tiny only. Philippi
- Acanthina lugubris*, Shy
- Lottia gigantea*, Gray
- Star Fish - *Pisaster* sp.?
- " " - large pedicels
- Pateria*
- Anomia*
- Ascrea undosa*, Wood
- Pterynotus carpenteri* - Carpenter's Rock shell.
- Pterorytis* ~~nuttallii~~ - *Murex* (P.) *trialatus* Shy Hinds
- Chiton*
- Chiton*
- Acmaea scabra*, juvenile.
- Erato vitellina*
- Tegula gallina*, Forbes. Speckled.
- Norrisia norrisii* Shy
- Acanthina*?, 3 stripes, small.
- Thais-like, 2"-3", orange inside. *Ocenebra paulsoni*, Carp -
- Crab, large heavy claws, black tips.
- ALGAE - on *Lottia gigantea*
- " - on *Acmaea scabra*.
- Pterorytis*
- Pterorytis nuttallii* Conrad.

Collector

Lee O. Miles

Collection BC 28 (EN4)

ENSENADA, B.C.
La Playita

May 5th, 1952

Low tide at 12.00 M, 0.7'

Low surf.

Off the point at LA PLAYITA, north of ENSENADA about 2 miles.
Boulders, cobbles and gravel on bed rock, exposed; with much
sand washing in at margins of boulder field. Volcanic.

Collections include:

- Astrea undosa, small to medium.
- Pteryonotis carpenteri, "Murex", fine specimens.
- Drills
- Basket shells
- Haliotis cracherodii, small to medium
- Haliotis fulgens, small.
- Ischnochitona conspicuus.
- Chiton
- Chiton

See also BC 1, 23, 24.

Collection BC 29 (EN 5)

ENSENADA, B.C.
La Playita

May 6th, 1952

Low tide at 12.30 PM. 0.8'

Low surf.

Same as above BC 28, and further out.

Collections include: *Littorina gallina*, Forbes. speckled.

- Astrea undosa
- 403 ~~Pteryonotis carpenteri~~) *Murex festivus*, Hinds
- 402 ~~*Chelydon panamensis*, Gray~~ See specimens # 400 - 403.
- Basket shells
- Cracherodii (Haliotis)
- Haliotis fulgens
- Chitons
- Chitons
- Lottia gigantea, Gray
- 401 + 400 Pterorytis nuttallii (Hornmouth) (*Purpura*) Conrad
- Acmaea digitalis
- A. patina
- Acmaea sp. Small, speckled margin.
- Norrisia norrisii, Sbr
- Shell of red-spotted crab (like Cancer)

Collector

Lee O. Miles

Collection BC 30 (EN 6)

ENSENADA, B.C.
Punta Bunda

May 8th, 1952

Low tide at 1.30 PM, of 1.3'. Low surf.

In small inlet or cove at south of base of PUNTA BANDA,
South of ENSENADA and TODOS SANTOS BAY; dirt road, rough.
Steep rocky shore, with boulder and cobble beach at base,
with sand in small areas; bed rock much exposed. Granitic.
Much ALGAE off shore, especially Kelp beds.

Collections include:

- Kellettia shells at fisherman's camp.
- Haliotis corrugata shells at camp.
- H. cracherodii, all sizes, crevices. *Finch.*
- H. fulgens, tiny only.
- Acanthins lugubis, *shy*
- Thais emarginata, *Deshayes*
- Acmaea digitalis
- A. scabra
- Lottia gigantea, *gray*
- Mopalia sp.
- Ischnochitona conspicuus
- Chiton
- Nudibranch
- Norrisia norrisii

Land snails

Collector,

Lee O. Miles

Collection BC 31 (EN 7)

ENSENADA, B.C.
San Ysidra

May 9th, 1952

Low tide at 2.00 PM of 1.5'. High surf.

From ENSENADA, south to SAN VICENTE; west down San Ysidro Creek to coast, north to Bird Rock and iron ore dump near (S.) Point Cabras. On rocks, at Zone 1 mostly. See also 8, 16,

Collected :

Tegula funebris?

Acanthina lugubis, *Sowerby*.

Lottia gigantea

Chiton, small, orange.

Nudibranch, yellow.

Hydroids

Mytilis

ALGAE - many present, an excellent place to collect.

Collection BC 32 (EN 8)ENSENADA, B.C.
Gomez Beach

May 11th, 1952.

Low tide at 3.00 PM of 2.0'. Surf high.

Opposite mouth of Santo Domingo Creek, closed, ending in lagoon with rushes; seepage thro dunes to sea.

In Zone 1 only.

See also BC 3, and succeeding collections.

Collections include:

Acanthina lugubis, *Sb*

Tegula funebris?

Littorine, striped.

Acanthina *gigantea*, *Stearns*

Collector,

Lee O. Miles

Collection BC 33 (EN 9)

ENSENADA, B.C.
Rosario.

May 12th, 1952

Low tide at 3.45 PM of 2.3'. Open to moderate surf.

From ENSENADA on main highway past Colonia V. Guerrero, Gomez Place, San Quintin Bay, to ROSARIO on Rosario River; cross river, parallel it to dirt road taking off to south and west to PUNTA BAJA, the north arm enclosing ROSARIO BAY. Beach with alluvial cliffs, cobbles, gravel and sand on bed rock; some protection from sea to north and northwest.

Coll ections at 3.00' tide includ e:

Bursa californica? *Hinds*

Jaton festivus Hinds

Fossil of above.

Piddock - fossil. *Petricola californiensis*

Acanthina lugubris

~~Thais emarginata?~~ *I. ostrina*, Gould.

Acmebra pulsoni, Asp

. Acanthina - Smooth dark shells. *A. lugubris*, Shy

Littorina, banded, small.

Should be an excellent collecting ground at a minus low tide.
Good camping sites.

Collector,

Lee O. Miles

Collection BC 34 (EN 10)

ENSENADA, B.C.
La Playita

May 15th, 1952.

Low tide at 8.00 AM of -0.5'

Moderate surf.

North of La Playita on main highway to sign KM 101; then west to beach and 100 yards north to point with loose boulders on bed rock. Some conglomerate.

Collections include:

- Ischnochitona conspicua *Ischnochitona (Lepidizoma) clathrata* R.
- Chiton - mottled brown. *Ischnochitona (stenorabida) conspicua* G.P.
- Tegula sp. *T. ligulata*, Menck
- Slim gasteropod, 1" long.
- Haliotis cracherodii. 1, 2" long. Leach
- H. fulgens, 1/2" to 2" long.
- Crab, heavy claw
- Crab, small "mimulus".
- Crab, small Cancer?
- 7. Fish, small, prow nose, large fins. *Clinocottus analis*
- ~~Two~~ shells. *Fagelus affinis longisimatis*, Phil. & L.
- 7. Egg Case, spiral, composition like skate cases *H. heterodontus francisci*
- Acanthina sp.
- Gasteropods, small. *Purpura (Pteropysia) neithallii*, Conrad.
- " " *Littorina planaxis*, Phil.
- Barnacle on Oysters.

ALGAE.

Collector,

Lee O. Miles

Collection BC 35 (EN 11)

ENSENADA, B.C.
Punta Banda

May 16th, 1952

Low tide at 9.00 AM of -0.3' Protected from surf.

N

South of ENSENADA to MALADERO, west past Grulla Gun Club, to south end of TODOS SANTOS BAY, up to top of PUNTA BANDO, west along top to neck above Fish Camp, south down hill to Camp on cove on south side of Point.
See also BC 30.

Collections on boulders and bed rock:

Haliotis fulgens
H. cracherodii, *Reusch*
Crabs, heavy jaws
Star Fish, heavy spines.
Drill
"

4/3 - Tegula
Littorines, green, worn spire. *Macoma lividus*, *L. adams*
Crab, tiny, "mimulus"

- ~~Erato?~~ *Conus californicus*, *Hines*
Nudibranchs, brown-orange.

Chama?

Ischnochiton conspicuus *Camp.* *Stenoplos conspicuus* used by *Macginitie*
Acmaea sp.

Terebra?

Acmaea, small, ribbed.

Mussels - *Deftifer bifurcatus*, *Conrad.*

ALGAE - Finger-like, green, with parasites.

Collector,

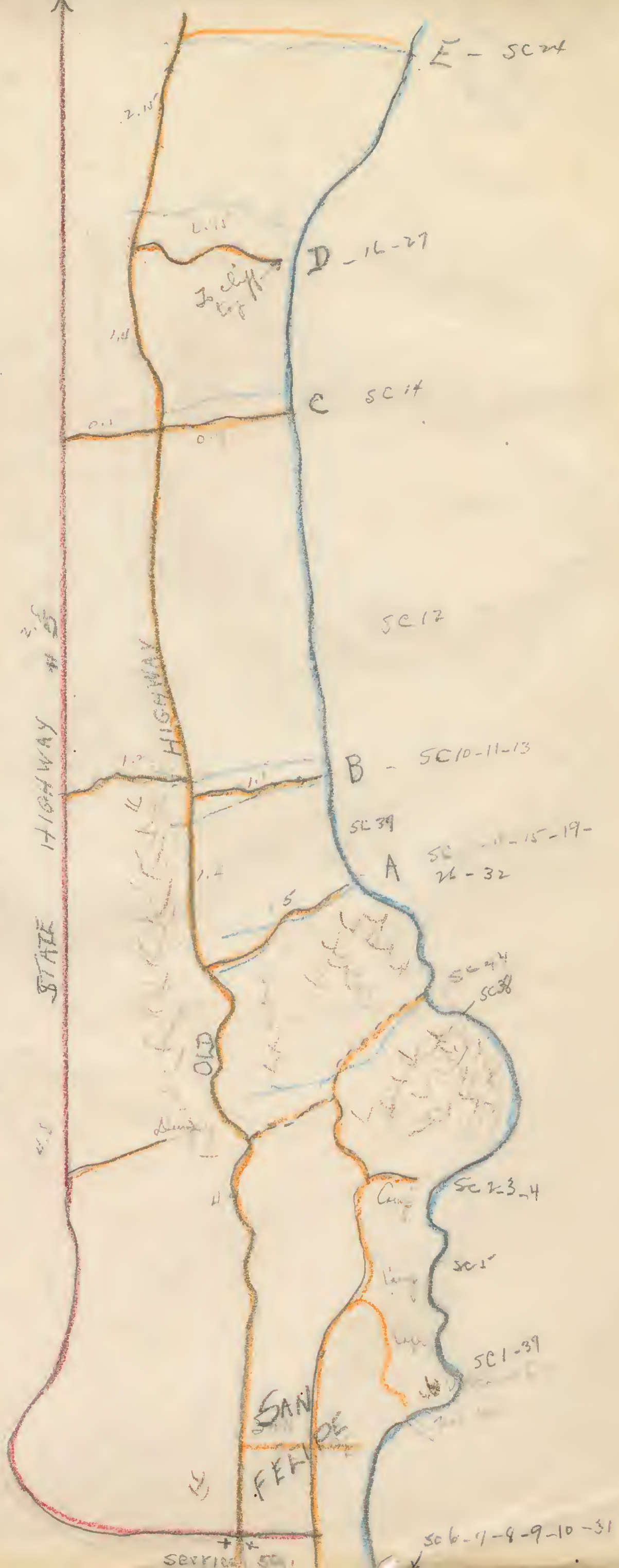
Lee O. Miles

TO MEXICALI

40

- Paved
- Dirt road
- Water - coast
- Mountains

No.



Distances
from Avalos Motel.

2.8

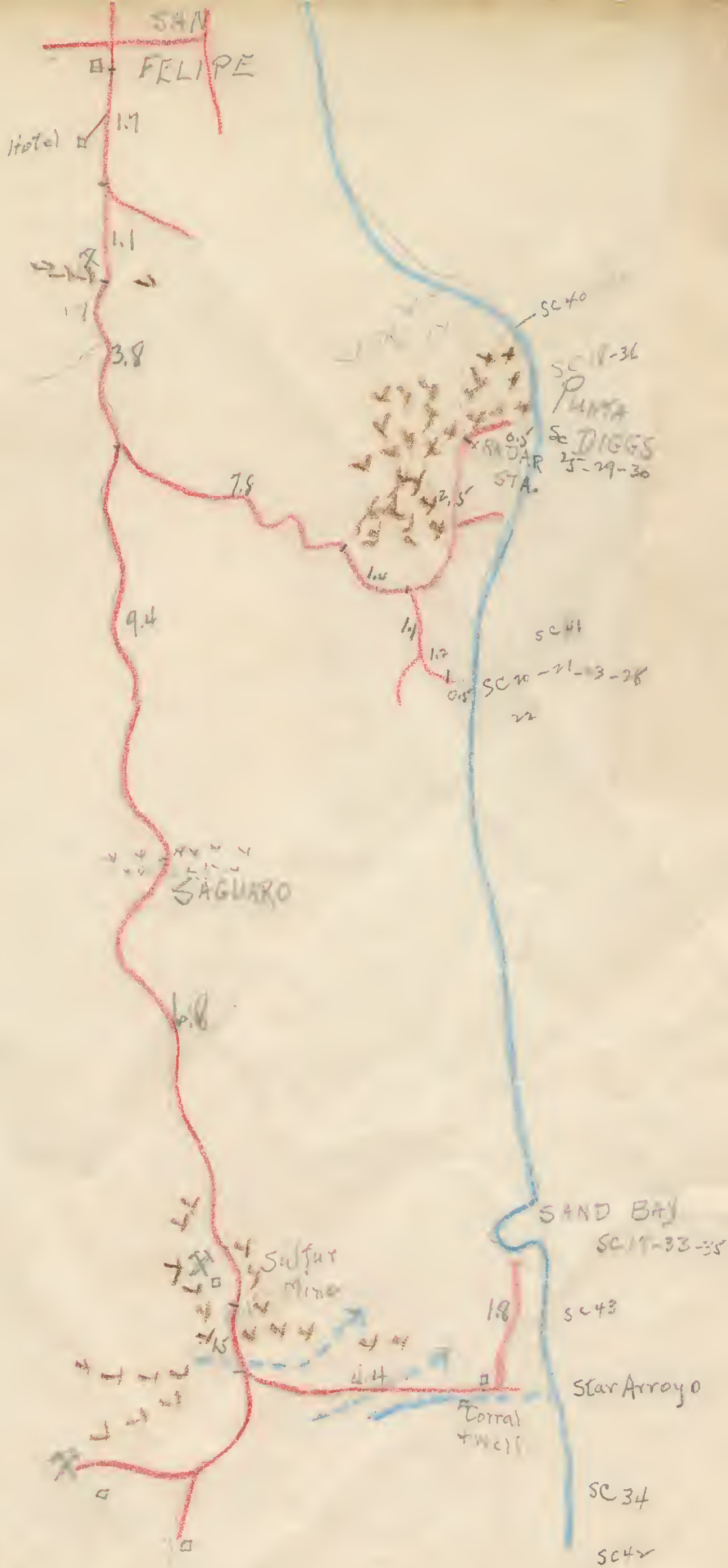
— Dirt roads,
— mtr.
— Coast &
waterway.

6.6

22.8

23.3

27.7 To CORRAL



SC 1-50
P 42-89

Collection SC 1

SAN FELIPE, B.C.
north

February 17th, 1952

On the Rocky Point north of San Felipe, below Volcanoe Light;
On lava rock, no sand. Exposed to sea. Sand beaches to either side of point.
In Zones 1, 2 and upper 3.
Early afternoon at low tide, low surf.

Collections include:

Specimen no. 13- Nerita { *N. scabricosta*, La Mure. Yellow spined, large teeth.
23a { *N. bernhardtii*, R. Granular outer shell & lip.
32. Cup and Saucer Limpet *Crucibulum spinosum*, Sib.

Tegula, large, green. *Tegula nigosa*, A. Adams.

Black Murex, in shallow cup on rock. *M. radix nigritus*

18. Acanthina - *A. angelica*

Shrimp, small, under rocks in upper Zone 3.

20 - *Cerithium stercus-muscarum*, Valen.

Collector

Lee O. Miles

February 18th, 1952

In the Sea Of Cortez, on the boulder-covered point north of the north cove at San Felipe, just south of North Mountain, adjacent to a lava flow covering granitic or porphyritic base rock.
On boulders mostly granitic, some lava, averaging 10" to 14" diameter. This boulder point is quite extensive even at a tide of - 0.5, with a fairly heavy surf. It is sheltered only from the North and Northwest, and from the West, moderately. Silte to gravel under and between boulders. In the oyster-barnacle-tegula zone.

- Specimen no.*
Collections include: 32 - *Cruciatulum spinosum*, Shj
19 - Tegula - *T. rufoa*: A. Adams
18 - Acanthina. *A. angelica*
Cerithidum?
Mussel
Black Murex, mostly small. *M. radix nigritus*
Clam, bent nose, heavy.
Clam, small, white
~~Petricola?~~ *Carista affinis* Calif. - Brod & Shj
81 - Lithofaga? Borer, pea. *L. attenuata*, Shj
Osters Oysters. *Ostrea angelica*
Crepidula nivea
81 - *Crepidula adumata* *Chicurea* of Brod. grey, small.
Amphissa versicolor
Pteria sp. Winged Oyster.
10 - *Solenostoma pallida angular* - Brod. & Shj
Crab, fuzzy.
Tethys? Sea Hare.
Compound Ascidea - creamy masses
Octopus, small.
Compound Ascidea, orange, orificed.
Chitons, greenish.
Brittle Stars, 2 species.
23a - *Merita burkhardi* - granular outer shell.
Buried in sand and gravel, Medium sized white CLAMS, taken for food.
Turritella gonostoma, Valen.
Turritella maculosa, Shj
Collector
Prototroca quata
Lee O. Miles
Acanthina mesoleuca, Thiele

Collection SC 3.

TELIPE
SAN FEPILE, B.C.
north

February 19th, 1952

Same general location as SC 2, and same general conditions -
Collected out into Zones 3 and 4,
And north to the large rocks on the Point.
Bottom of base rock, granitic, overlain by a close-grained
very hard, fine-textured lava.
Boulders from house sized to slab-like 2' by 3', 10" thick,
interspersed by rounded boulders 10" to 14" in diameter.
No silt, little sand or gravel. Exposed to all southerly
winds.

- spec. 30
no. Collections include: *Crepidula* cf. *C. perforans*, Valen.
39 *Pedalion chemnitzii*, Dab.
27 - Same as taken in SC 2, plus *Anachis cernua*, Lowe. Tiny black.
20 - *Cerithium stercus-muscarum*, Valen.
Fuzzy crab
Pagurus?, tiny.
Crab, 3", spotted.
Sea Anemone, red.
Sea Cucumbers, black.
Chitons. - *Ischnochiton* (*Stenocradina*) *magdalenensis* Hds (5)
19 - *Tegula rugosa*, a. Adams
21 - *Tegula* cf. *T. variegata*, Gray.
Algae:
Bladder-like.
Corallines

Shells found at edge of boulder field,

- 9 - *Turritella gonostoma*
- *Brachiodonta* - *Discinista* *cumingii*, Brod. (cumingii, mm)
- *Cerithi* sp. young. Collector,
Corbula plicarum, Corp.
or *Aloides brachinatus*, Dy
Lee O. Miles
45 - *Venus pulicaria*, Brod. Coarse Cone, sculptured.
Protathaca quata, Gould
Acemithina angelica

Collection SC 4

SAN FELIPE, B.C.
North

February 19th, 1952

Same area as S.C.2, but further south to the 2nd rocky point,
including the sandy beach of North Cove, as well as Reef & boulders.

Spec. Collections include: *Legula rugosa*, A. Adams

Same as SC 2 and SC 3 plus

- 24 - *Olivella dama*, Mawe
Conus
- 21 - *Nassarius leucops*, Pils. & Fome
Worms, plumed, in calcareous tubes.
- 32 - *Crucibulum spinosum*, Shy
Sea Anemone, red.
- 10 - *Solenostoma pallida* - Brod. & Shy.
- 16 - *Anachris varia*, Shy
- 18 - *Acanthis angelica*
- 30 - *Pomacea Crepidula* cf *C. perforans*, Valen.
C. incurva ?
Collector
Cerithium atherium-muscum

Lee 0. Miles

- *Arca solida*, Shy, Wheat grain shell
- *Fima orbigny*, Lam. Sm. wh. clam.
- Prototheca grata*
- Tellina* sp. white
- Fima debilis* - 1 valve.
- Donat navicula*, Hanley
- 35 *Petelia chemnitzii*, D'Orb.
- Venus pulicaria*, Brod. Coarse conc. sculpture.
- Glottidia palmeri*, Dall. Lamp Shell.

Collection SC 5

SAN FELIPE, BC
north

February 5th, 1952

Sand bar in SAN FELIPE COVE, north; same general area as SC 4, but off-shore at low tide, on a bar of nearly pure sand, separated from shore by a shallow 20 foot wide lagoon with bottom of sand overlain by a shallow deposit of silt. The beach at this point is covered with small boulders in Zones 1 and 2; an occasional boulder outcrops in Zones 3 and 4. These boulders are granitic with some of hard, fine textured lava.

Specimens

no. Collections include:

- 32 - *Crucibulum spinosum*, Shj
- 21 - *Nassarius parva leucops*, Pils. & Lome
- 38 - *Petalium chemnitzii*, Pils.
Lamp shell, spear-like. *Glottidia palmeri*, Doll.
Fusus orbigny, Lam.
Thais (floridana)
Arca solida, Shj - what grain shell
Searlesia?
- 24 - *Olivella pedroana dama*, name
- 30 - *Capitula* & *C. perforans*, Valen.

Collector

Lee O. Miles

Collection SC 6

SAN FELIPE, B.C.
South

February 21st, 1952

South of SAN FELIPE along the dirt road past Hotel Avalos for about 1 mile, then walk across (E) the beach row of sand dunes to the beach.

Oyster bars in Zones 2 & 3. Seaward there are 3 or 4 sand bars (depending on how low the tide is) with shallow lagoons between. The uncovered beach at 0.0 tide is 100 to 200 yards wide. The bars are of rather clean fine sand are nearly level. Some of the lagoons contain thine layer of silt; others are clean. None are stagnant.

Foramen
no. Collections were made on the bars and in the lagoons, as follows:

From the outermost bar and lagoon:

Sand dollars, keyhole, arrow. Maroon.

" " " , small green.

" " " , walnut shape & size.

From all bars and lagoons, including the outer:

- 3 - Plinices, small *Polinices reclusiana*, *Deshayes*
 Polinices egg cases.
 Conus; burrow like Olive. *C. regularis*
 24 - Olivella ~~pedroana?~~ *dane*, *mauve*
 10 - ~~Thais (floridana?)~~ *Dolmenostira pallida* - Brod. & Shy.
 Pagurus?
 Oysters
 12 - Small spiral gastropods *Turricula maculosa* - Shy
 22 - *Terebra* cf. *T. variegata*, grey
 Pelecypods - various empty shells
Pitar alternatus - ridged rayed clam.
 Compound ascidea with the oyster.
Livida byrenensis
 Star fish on outer bar, half buried in sand.
Cardita affinis californiana. (from Petricola)
 Algae, red, 2".

Collector

Lee O. Miles

February 22nd, 1952

South of SAN FELIPE 1 mile by road along Avalos' arroyo, same as SC 6, then on sand bars and in lagoons for another 2 miles further south.

Lower low tide than SC 6, so further out.

Bars mostly clean sand; a shallow silting in some of the lagoons.

Collections include:

Sea Anemone, red, 12" to 14" long, shaped like a baseball bat, even to end of handle. Spread of "flower" about 3". Near outer edge of outer bar.

Sea Anemone, greenish white, lays "petals" on sand, contracts rapidly. 6" to 10" long, pencil shaped but crayon size; found with above but higher up on the outer bar.

Sand Dollar, arrow, keyhole; by the thousands on the outer edge of the outer bar and out in the shallow water, and in drainways. Brown-maroon.

Sand Dollars, like the above but slightly larger, circular, not notched; with the above.

Sand Dollars, small green, circular; usually above the above two, on the bar.

Black Murex; large specimens, usually heavily barnacled and rough; in the lagoons. *M. radix nigritus*

Hermit Crabs, possibly several species, of all sizes, in all gastropod shells.

Clam, orange, small.

Clam, white, small. *Lucina lamprea*, shell

Tellina shell.

40 Borer shells in clay bed. Young ones are so fragile, have to be handled by neck. *Borer pacifica*, Stearns

Olivella ~~pedroana~~, plentiful, great travelers, *O. dama*, Moore plow long furrows.

Nassarius ~~parva~~ ^{leucop} smaller than above, but also make long burrows.

Star Fish, fragile armed, many on outer bars, usually at least partly covered by sand.

Sand Dollar, Porcupine, walnut shape and size; casts only.

Worm tubes, calcareous, small..

Wedgies - *Planorbis navalicula*

Tellina like but thin - white

Pitar alternatus -

Collector

Carthia affinis californica Lee 0 Miles

Tridacna byronensis

Terebra cf. *T. variegata*

Heterodontus

Collection SC 8

SAN FELIPE, B.C.
South

February 23rd, 1952

South of SAN FELIPE from 3 to 4 miles along the sand bars and lagoons at low tide, back along the steep sand-gravel upper beach at high tide mark for loose empty shells.

Specimen no. Collections include: *Polinices uber* - white.
Protothaca quata
Collar of *Polinices*.

Tellina sp. white.

Sea Anemone, red, 14"

Crepidula sp., deep, narrow.

Sea Anemone, white, 8", squirts like a clam; flower-like opening.

Worm, dark-brown antennae, 1" diameter.

Tridacna *byrenensis*

65 - Clam, concentric lined, on dry sand bars, mostly toward shore, *Dorsina ponderosa*, Grey

Sea Anemone, small, 1/2" long, on shells.

20 - *Centurium stercus-muscarum* - pitted dark *Lectornis*, Korbly.

Black Murex, large, many on Oyster Bar on 2nd bar from shore; also on sand flats, partly buried.

Polinices, small. *P. reclusiana*

Heterostoma *dema*, name

24 - *Olivella* *pedregana*, large specimens. Also some small, worn.

Cardium procerum.

Hermit crabs.

Notincheranitzii, Pfeiffer - grey banded.

Sand Dollars; point against surf or tide flow of drainage streams (tidal)

Empty shells, a variety from high tide mark.

Cardita affinis californicus

Crucibulum spinosum Sbi

Pitar alternata

Collector

45 x 49

Venus pulicaria - Brod. *Conus conc. aculeatus* Lee O. Miles

Mussel, small.

Corbium sp. many ridges.

Clam, white, small, @

Turricula maculosa - knobby spindle.

Collection SC 9

SAN FELIPE, B.C.
South

February 24th, 1952

South of SAN FELIPE 4 and more miles to within half a mile of the cliffs, along the base of which the sand bars continue to be exposed at low tide. A stiff Northeasterly wind with much blown sand and dust.

Spec. no.

Collections include:

- 6 - ~~Polinices~~ *Natica Chernitzi*, Pfeiffer
12 - *Turricula maculosa* - Sib.
24 - *Olivella pedregana*? dome, wave
Murex rotidus nigritus.
Pismo like, small, brown clam. *Tinea byrenensis*
Solenostoma plicata
Worm casts
Polinices reclusiana
Wedgies - *Donax navalicula*
nassarius leucops, Brod. & Fox
Dead shells: *Turricula maculosa* - knobby spangle
Pink Murex
#9 - *Turritella gonostoma*, Valen.
Alphabet marked Clam
Cone, light.
Cone, brown
Arca.
Pteria (Winge Shell)
Spirula of Serpularia
Jingles.
Cardium procerum, Sib.
Glass floats, one mexican make.
Fish Jaw bone.
Crusibulum
Tellina - white
Cardium procerum
Cardium sp. - many ridges
Liguus Clam
Cardium affinis
Turbo sp.
Small white O clam
Chione
Protobornia grata.
Mussel.

Collector

Lee O. Miles

Oyster Bar.

Collection SC 10

SAN FELIPE, B.C.
South

February 25th, 1952

Oyster Bars from 1 to 2 miles south of SAN FELIPE, at foot of steep upper beach in Zones 2 & 3. On sandstone strata protruding from upper sand beach, about 4' below high tide mark which is 50 to 60 feet up shore. Beyond the high tide mark lie sand dunes against the base of which lies much storm wrack. At a tide of 0.0', these oyster bars are exposed, but with tide pools in and below. They are much worn.

Specimen

Collections include:

No. At upper edge:

204 - Balanus? *B. canosus*, Pallas. (Det. by Rogers, U.S.)
Acanthina - *A. angelica*

As go seaward and gradually lower:

Cerithidium? Black and white.

Ostrea, some.

Where wet at 0.0 tide and lower:

34 - ^{Drives} Ostrea predominating. *Solenostoma pallidum*, Burd & Shy.
Ostrea angelica, Rosh.
Worms in black tubes

Thais

Acanthina - *A. angelica*

Cerithidium

Balanus, some.

Crucibulum - *C. spinosum*, Shy

Hermit crabs (At all levels)

Crabs, under all rocks.

Bryozoa, dark red-brown, leaf like.

Compound Ascidea, cream color.

" " , Orange.

~~Petricola~~ sp. From mid-bar out, in most crevices and semi-sheltered cavities with "running water", often half covered with sand, many of these clams are found, some as much as 4" long. *Cardita affinis californiana*

- *Nereis lewini*, Pils. & Lane

Algae:

Ulva, narrow.

Spear-like leaf, indented.

Brown filament.

Iris Moss?

Tufts, short, brown.

Collector

Lee O. Miles

Collection SC 11

SAN FELIPE, B.C.
North

February 26th, 1952

Sand beaches north of SAN FELIPE mountains north of the village. Proceeding north on Highway # 5 from the service stations at the entrance to the town, for 4.8 miles; thence on a dirt road (merely a car trail) east 1.2 miles to the Old Highway, itself an ungraded dirt road; thence south briefly to a dirt road turning east toward the beach on a gravel bench or flat, and east on this road 1.1 miles to the cliff top above the shore; or turning off this dirt road midway to the beach, to the right into a dry arroyo which leads on to the beach, but is usable only by Jeeps. This leads to BEACH "B".

Or from the point where the Old Highway was reached, south on the Old Highway 1.4 miles to another dirt road on the left running eastward to the beach on the alluvial flat. With four wheel drive one may leave this midway to the beach and proceed down a sandy dry arroyo to the shore. This collecting area is BEACH "A".

Collections on this date were made only at high tide, of empty shells. These shells are valuable only as indicating the nature of the intertidal zones. On this date and with a strong wind and heavy surf, the muddy water for hundreds of yards off shore indicate a wide intertidal zone, sandy but with some silt. The shells taken indicate also some boulder fields and oyster bars. See subsequent collections on BEACHES A and B for the actuality.

Specimen

no. Collections include: *Protothaca grata*, Say.

32 — *Ostrea*
— *Crucibulum C. spinosum* Shy
— *Anomia?*
— Some cones
— Some Black *Murex* *Murex radix nigritus*
— Some clams, including

65 — *Laevicardium elatum*. or Giant Cockle
— Heavy flat white clam *Dorsina ponderosa*, Gray
— Mussels - *Modiolus guyanensis*
— Cockles
— *Petricola?* *Cardita affinis californiana*
and others.

Tellina sp.

Junonia gonostoma

Collector

Lee O. Miles

Collection SC 12

SAN FELIPE, B.C.
North

February 27th, 1952

At Beaches A and B, and northward for a half mile; see SC 11.

In AM, found the tide well out, but coming in rapidly. The beach dips sharply thro Zone 1 and 2, for 50 to 150 feet; is of clean sand with some gravel. At the lower edge of this relatively steep strip, boulders begin to appear, averaging less than 1 foot in diameter, and well water-worn, of granitic and volcanic origin. From the lower edge of the steep fore-shore, boulder fields extend outward for an average of 100 yards; at the mouths of arroyos, these boulders are more or less covered by washed sand and gravel. Also this boulder area is broken here and there by patches of exposed clay and silt.

Beyond the boulder field, which is generally an oyster-balanus belt, sand bars separated by shallow lagoons extend seaward for hundreds of yards, so that at a minus tide the width of the intertidal zone is one half mile or more. The bar area is also covered with clay and silt patches where tidal carry-off has taken away the sand cover.

Specimen
no.

Collections include:

At Beach "A", in the boulder strip:

Oysters

Balanus

Clams, especially Protothaca.

57 — Mussels *Modiola guyanensis*, La Murex
Black Murex *M. rodia nigritus*

19 — *Tegula angelae rugosa*, A. Adams

At Beach "B" and northward, on the steep shore, Zone 1:

Shells only:—

~~Petricola~~

32 — Crucibulum *C. spinosum*, Sib.

Conus

Jingles - Anomia?

And other s

10 *Solenostoma pallida* - Brod. & Sib.

Collector

Lee O. Miles

Collection SC 13

SAN FELIPE, B.C.
North

February 28th, 1952

North of the SAN FELIPE Mountains, at Beach "B".

At low tide in early A.M. Little surf. Fog and tide in at 11.00 AM.

A. On the 3 to 7 sand bars exposed by this low tide, and in the intervening shallow lagoons, in some of which are clay and silt beds . 1,000 yards wide at low tide.

B. On boulders nearer shore, Zones 2 and 3, where the typical fauna is Ostrea-Balanus. Boulders average less than 12 inches
See SC 11 and 12.

Specimen
no.

Collections include:

- 7 - A. Large Conus, in outer two lagoons, with silt. *C. regularis*, Sowerby
~~Thais floridana?~~ with covering of *Solenasteria pallida*, Brod. & Ph.
Sponge, orange (on above) *Cerithidea* sp.
Sea Cucumbers, small, light to brown.
14 - ~~Nudibranchs, in wet sand near sea; small, creamy white.~~ *Haminoea strongi*, Baker.
Sand Dollar, brown, arrow, keyhole. (Bubble shells??)
" " green, circular, " , small.
Wedgies
Worms in balls several inches in diam, calcareous, like brains.
Worms with yellow growth.
3 - Polinices *P. redemptoria*, Doherty.
Olivella ~~pedunculata~~ *dona*
Worms, commensal with conus.
Crabs
Crab with clam valve for back.
Pagurus
9 - Turritella *gonostoma* Valen.
Sea Whips (Pennatulid?) in mid to outer lagoons.
Jack Knife, shells only.
B. Black Murex - *M. solidus nigritus*.
~~Thais floridana~~, medium size only. *Solenasteria pallida*, Brod. & Ph.
Ostrea, small, crowded too much.
Sea Anemone, pink, on boulder bottoms.
Sea Anemone, green, with above.
Crabs
Pagurus.
34. a *Balanus amphitrite*, Darwin. (Possibly new subspecies - Rogers)
Crucibulum spinosum Collector
Laguna rugosa, A. Adams. Lee O. Miles
Cerithium stercus-muscarum . 6
Crepidula incurva, Brod.

Collection SC 14

SAN FELIPE, B.C.
North

February 29th, 1952

North of SAN FELIPE Mountains, at BEACH "C". See Map.
North on Highway 5 7.6 miles from SAN FELIPE, thence east on dirt road 0.5 mile to Old Highway, nrth 50 feet to arroyo, east down arroyo (Jeeps only) 0.7 mile to Beach "C". Worked north along sandy shore at foot of usual alluvial cliffs.
Boulder field at ths beach has been so badly sanded and silted that its usual fauna has been lrgely killed off. Few live Murex and Mussels were observed.

Collected:

Solenostoma pallida, Bwd. - Drill.

Algae - *Ulva taeniatis*?

Acanthina angelica

Sand Dollars, small green keyhole.

Crucibulum spinosum

Black Murex, a few. *M. rodit nigritus*

Nassarius

Oysters, a few on bottoms of boulders.

Cerithium stercus-muscerum - speckled Littorinis.

Thais floridana, large specimens.

Tellina sp. white.

Polinices. *P. reclusiana*

Protolusca sp.

No Conus observed.

Recent kitchen middens contain Clam Shells, average 4" diameter, showing that clams are taken here for food.

Shells only

Murex rodit nigritus

Protolusca

Pitar alternatus

Collector

Lee O.Miles

Collection SC 15

SAN FELIPE, B.C.
North A

March 1st, 1952

North of SAN FELIPE on Highway 5 for 4.8 miles, east on dirt road 1.2 miles to Old Highway, south on same 1.4 miles, east on dirt road about 1.5 miles to BEACH "A", part of this last stretch down a sandy arroyo.

Collecting was at Beach "A" and south for a half mile. The alluvial cliffs above Storm mark give way to granitic and rhyolitic? rock cliffs, at the base of which and out into the sea extend boulders of lava, close-grained and hard, granite, and some shale. There is very little silt or clay.

On this date, tide not low, unable to collect out beyond the 3rd or 4th bar.

- Cerithium stercus-muscarum*.
 no. Collections include: *Cerithium* sp.
Tridacna byrenensis
 67 - Pholads in soft shale - *Barnes pacificum*, Starns. juvenile
Solenostoma pallida, Brod + Ph.
 Flat worms on boulder bottoms.
Acanthina angelica
 Clam, small brown, like Pismo
Nassarius leucosus, Brod + Ph.
 Black Murex, on outer Oyster bar. *M. rostris nigritus*
Olivella dama
 Cone shell, one alive. *C. regularis*, Sby
Furcillula gonostoma - small specimens
 Dentalium shell. C/f *D. inversum*
Stomatopoda nevalicula, Hensley
 Olive shells, washed up on reef where boulder field extends out 200 yards from shore.

Various Pelecypod valves, especially Cardium.

Pitar alternatus. Fine conc. lines.

Collector

Lee O. Miles

Collection SC 16

SAN FELIPE, B.C.
North

March 2nd, 1952

North of SAN FELIPE to Beach "D". See Map.
From SAN FELIPE, north along Highway 5 for 7.6 miles; thence east on dirt road 0.5 miles to Old Highway; thence north 1.4 miles to a dirt road running east to the beach for 0.75 miles.
Beach "D" is clean sand, with silt only in the lagoons in patches, well out. Boulder fields if any, are sanded over by wash from the large arroyo at this point. Alternate bars and lagoons extend out for over one mile at a Minus 1.0 foot tide.
As proceed north along this shore north of San Felipe Mountains, the exposed flats become more free of boulders, and more silt.

Specimen

no. Collections include:

Crucibulum spinosum

Jelly Fish, 2.

Natica chemnitzii, Pfeiffer - Gros banded.
Sea Squirts

203

Barnacles *Balanus amphitrite* 1/2 *albicostatus*, Pilsbry.
Pitar alternatus - Rugged ridged clam. Fine (Rough) conc. sculpture
Tagelus
Turricula maculosa.

Ensis

45 - *Venus pulicaria*, Brod. Conc. conc. sculpture.
Small red clams (Tellina?)

Wedge *Donax navalicula*

Various dry shells and valves, including

64 -

Laevicardium elatum, Stb

65 -

6" flat heavy white clam. *Dorsinia ponderosa*, Gray

Black Murex shells, large. *M. retix nigritus*

Collector

Lee O. Miles

Collection SC 17

SAN FELIPE, B.C.
Sulfur Mine Arroyo

March 3rd, 1952

South of SAN FELIPE to Sulfur Mine at 23.3 miles; thence east toward the beach 4.4 miles to Water Hole Corral near shore, in arroyo bed; thence north along dirt road 1.8 miles to Sand Bay. Tide well in, most of collecting done at or near high tide mark. At this time, this bay is quite an impressive body of water, and here and on the outer sea beach, the bottom seems to drop away rapidly and there seems to be no bars. However, later visits at low tide - see SC 33- show that at low tide there is no bay except for tide pools and streams; and that sand bars are exposed fully a mile off shore.

Specimen

Collections include:

- Wedgies *Donax navalicula*
- Coral
- Sand Dollars, green, circular, keyhole.
- " " , brown, arrow, keyhole. *Eucopa*
- Hydroids
- Sea Squirts
- Tethys
- Crabs, swimming.
- Crabs, small, with heavy claws.

Empty shells:

- Cowrie
- Olive *Olivina angula*, Lamarck
- Cones
- Atrina (Pen)
- Strombus
- Pecten, 1 valve deep. one flat.
- Jewel case clam, $\frac{1}{2}$ "
- Clam, large, flat.
- Laevicardium *elatum*
- Bubble - *Bulla gouldiana*, Pilsb.
- Ensis
- Lyonsia sp. *juvenile*
- Polinices, large. *P. reclusiana*, Deshayes
- " striped or banded. *Polinices bipartita*, Gray
- Turris similans* - (red) Collector
- Turricula maculosa*
- Turris californica*
- Chione* sp. - tiny
- Cardium, small. *C. allenense apicum* Corp.
- " large
- Pteria (Winged)
- Pink Murex
- Black Murex *M. radix nigritus*
- Ficus
- Turris byrenensis*, Ray

Lee O. Miles

Collection SC 18

SAN FELIPE, BC
Pta Diggs

March 4th, 1952

PUNTA DIGGS, 18 road miles, about 10 by boat, from SAN FELIPE. Leaving Avalos Motel, proceed south along dirt road below Hotel; at 2.8 miles, pass Little Mountain Mine; at 4.5 miles pass a branch road leading west; at 6.6 miles, reach main fork, take fork to east toward coast; at 13.1 miles reach foot of first ridge of DIGGS MTS; at 14.4 miles, a branch road takes off southeasterly for beach at SAND POINT; continue on left fork, skirting the mountains, turning abruptly north at 15.2 miles; proceeding north parallel to ridges to foundations of ole Radar Base at 17.4 miles. This is 0.5 miles across dunes to beach.

PUNTA DIGGS is actually 4 points. The first, most southerly one, is mostly clean sand; overlaying this sand toward the north is a strata of rock 3 to 4 feet thick, not in layers but seemingly consisting of many irregular flows of lava heavily embedding shell fossils, mostly pelecypod. A sandy-gravelly cove interposes between this and the 2nd point, which differs from Point 1 mostly in having a thicker rock layer. Another cove and a third point, the rock strata increasing in thickness to 10 to 12 feet, similar in composition to that of the southerly points but with some layers of nearly shell less sandstone. Here the rock strata submerges and extends an undetermined distance to sea. The most northerly point resembles point 3. The origin of these fossiliferous strata was not determined; the main body of DIGGS MOUNTAIN is granitic, a batholith that has eroded into a number of radiating ridges. Heavy shrubbery grows at the base of these mountains. Near the Radar Station lies an unusually dense grove of sajuaros. A similar stand lies west of the ridges. On the dunes east and south, sand lilies, large white evening primroses, mallow and various composites are plentiful at this season.

Collections along the high tide mark, include:

Pink Murex	<i>Venus pulchra</i>
Black Murex, alive. <i>Murex rosaceus nigritus</i>	<i>Pitar alternatus</i>
Nerita in the splash zone.	<i>Tellina similans</i> (Red)
Petricola? alive.	<i>Tellina</i> , sp. (white)
Ensis shells	<i>Sailors Env.</i>
Protothaca	<i>Murex</i>
Olive <i>Olivia angula</i> , Lamarck	<i>Solen rosaceus?</i>
• <i>Pteria</i> (Wing)	
Star fish, dried.	<i>Pecten velus</i> - fossil.
Hydroids	<i>Pecten vogelii</i> , Linnaeus. Rep.
Tethys	Collector
Gorgonids	Lee O. Miles
Encrustations, various.	O. Chen
Corallines	

13 - Bubble shell - *Bulla gouldiana*, Pils.
15' *Gonaria sp.* Not same as for Wilcox.
- *Cryptomya californica*, Conant. Sm., mya-like with clams.
- *Corbula affinis californica*
- *Solen*, sp. Juv.

Collection SC 19

SAN FELIPE, B.C.
North A

March 5th, 1952 .

North of SAN FELIPE at Station "A", collecting south along the beach, east of the mountains, past 3 granitic points and the coves they contain. Boulders, sand and gravel are almost purely granitic, with little silt, and a relatively narrow (200 yards) belt of sand bars exposed at low tide.

Specimen

Collections this date were made in the Ostrea-Balanus zone:

no. *Cardita affinis californiana* - (like *Cardita*)
Black Murex, in plenty, rather clean. *M. radix nigritus*
Solenostoma pallida, Brud. & Pby.

Petricola?

Polinices uber, ValerProtothaca - *P. grata*~~nautilus~~ *leucops*Limpets, plentiful. *Acanthina mesoleuca*, many*Monax navalis*, many

Crabs, many

Cerithium stercorarium, Valer.

Flat Worms

Chitons

Thais

Crucibulum *C. spinosum*

Fish - eel like, &c

27

Anachis cormen - tiny black gastropods

ALGAE

Shells - *Lurricula maculosa**Chione* sp.*Lagodon*{ *Muscul.**Modiolus guyanensis**Pitar alternatus**Venus pulchra*

Collector

Lee O. Miles

Collection SC 20

SAN FELIPE, B.C.
Pta Diggs

March 6th, 1952

South of DIGGS MTS at SAND POINT.

From Avalos Motel in San Felipe, south 6.6 miles; here take to east or left fork and proceed southeasterly 6.5 miles to the foot of the first ridge to the Diggs Mts; continue east 1.3 miles; take the right fork 1.1 miles, thence an additional 1.2 miles along the left fork to the top of a low mesa or bench 16.7 miles from Avalos. This overlooks the sand dunes which extend a half mile to the beach. A Jeep can make this half mile, but with difficulty. SAND POINT extends briefly to the east, and is a fine repository for empty shells brought in by the surf at high tide. The foreshore is abrupt and narrow, of clean sand and gravel; from its foot, low sand bars extend a mile to seaward, running at a slight angle to the beach, draining slightly to the north by half a dozen lagoons. An occasional bed of clay or sand-covered silt, or silt-covered sand, is found.

Specimen
No.

Collections include: Shells empty, from high tide mark.

- 37 - Tellina, red *J. similis*, C. Adams
Conus, small dotted.
Olive - *O. incornuta*
- 24 - Olivella ~~pedunculata~~ *dama*, Mawe
Cardium *C. procerum* Shy
Laevicardium, fairly abundant.
Dosinia ponderosa, white, circular, flat, 4"-6".
Ensis
Barnacle, red, large.
Barnacle, small, volcano.
Eggshell cardium
Black Murex - *M. radix nigritus*.
- 3 - Polinices, large, brown. *P. reclusiana*, H. S. G. Hayes
5 - " , small, white *P. ruber*, Valen.
6 - " banded, gray, medium. *M. chemnitzii*, Pfeiffer
- Sand Dollars, green, circular, keyhole.
Aletas (Like worm tubes.)
Ficus
Donax
Nassarius ~~parva~~ *N. leucops*. Brod. & Sord
- 67 - Pholads - *Barnes pacificum*, Stearns. *juvenile*; in clay beds.
Cast of Small spider crab
Pitar alternatus, fine conc. sculpture
Solenostoma pallida - a few? Collector
Heterodonax bimaculatus, Simm. Lee O. Miles
- 45 - Venus *pubescens*, Brod. *Conus conc. sculpture*
55 - *Lirich byrenensis*, Ray
Invitella gonostoma, Valen.

Collection SC 21

SAN FELIPE, B.C.
Pta Diggs

March 7th, 1952

Same collecting area as yesterday's SC 20; storm last night has ~~en~~ enriched the beach, especially at the sandy point.

Collections include the following shells:

- Same as collected in SC.20, plus
- SS *Lirca byrenensis*, Day
 - Calliostoma palmeri*, Dall
 - Architectonica nobilis*, Boulton.
 - Cardium* - *C. procerum*, Shy
 - Crucibulum*
 - Encrustations, like staminites.
 - Corcardium elatum* Shy
 - Ensis*
 - Pitar alternatus*
 - Geoduck? valve
 - Venus pulicaria*
 - Macoma*, bent nose. *Sailor's Ear*
 - 5 - *Polinices ulter*, Valen.
 - Furina* sp. juvenile
- Collector

Lee O. Miles

- Shells only: # 20 & 21
- Pecten voglesii*, Arnold. Deep valve.
 - Sailor's Ear*.
 - Conus ximenes* - speckled, purple.
 - C. regularis* - larger, orange marks.
 - Pholas dilecti* - angel wing (Phy & Lowe)
 - Cardium* - 1 rib only.
 - Tellina pinnulosa*
 - Venus pulicaria*
 - Tritella gonostoma*, Valen.

Collection SC 22

SAN FELIPE, B.C.
Punta Diggs

March 8th, 1952

South of Avalos Motel in SAN FELIPE about 16.7 miles, and south of Punta Diggs and the Diggs Mountains, over the same areas collected in SC 20 and SC 21, but extending several miles further south along the sandy beach, and out on the sand bars in Zones 3 & 4. The beaches were of clean and coarse sand and gravel, with only a few small cobbles; with some silt in patches in the lagoons.

Collections include alive: *Venus alternatus*,*Crucibulum spinosum*

Cardium, small

✓ - Pismo-like small brown clam. *Tridacna pyrenensis*, Ray
Olive24 - *Olivella dama*, namePolinices, *P. reclusiana*, Deshayes. *Wiel Sea Anemone*

" banded, gray

Natica chenuitzi, Pfeffer5 - " milk white. (*Natica*) *Polinices* *iber*, Valen.

Sea Anemone on Polinices,

" " 12", white, in sand.

Hermite crab, large, heavy claws

~~*Theis floridana*?~~ *Phoron* *navalis*, Hawley*Iris lamellifer*? Ribbed Clam.*Solenostoma pallida*, Brant & Pidge.

Dead shells:

9 - *Turritella* *T. gonostoma*, Valen.*Laevicardium* *l. elatum**Dosinia* *D. ponderosa*, Gray.*Atrina* (Sea Pen)*Pteria* (Winged)~~*Solen*~~ *rostratus*.*Tellina*?, pink, to 4".

Casts of Porcupine sand dollar, walnut shape and size.

Solen *Ear*.33 - *Pyrene foscata*, Sby*Pecten* *sp.* - flor.*Pecten* *vogelii*, Arnold. *1 day*, 1 *few* *valve*.

Collector,

Lee 0. Miles

*Crucibulum spinosum**Tridacna californiana* - broad footings*Phoron* - *Angel wing* - *Phoron dilecta*, Pby & Sore

Mussel, banded

Altea.

Collection SC 23

SAN FELIPE, B.C.
Punta Diggs

March 9th, 1952

South of San Felipe and the Diggs Mountains and Point, over the same areas as in SC 20 and SC 21, but further out on Pelican Bar, a good mile long and the highest of the bars off Sand Point. One bar and intervening lagoon lies to the seaward, and much marine life has been washed out of it and on to Pelican Bar, especially on the west or landward side.

Collections include:

- Alive: *Natica bifasciata*, gray. Brown banded.
Olive. A plowing gastropod, easily located.
- 24 - *Olivella davis*, Howe
Ridged Clam, 1 1/2" clam
~~Natica~~ (White, small) *Polinices ulter*, Valen.
~~Polinices~~, gray, banded. *Natica chemnitzii*, Palmer.
Donax nanalicula
- 3/a - *Crepidula* on *Polinices* *C. incerta*?
Compound Ascidea
- 3 *Polinices*, ~~(Recluziana?)~~ *P. recluziana*, Desch.
Sea Squirts

Dead:

- Atrina*, small (Sea Pen)
Pecten *diegensis*? One flat valve.
Chlamys (Scallops).
~~Ensis~~ *Cardita affinis californiana* Desch.
- 64 - *Laevicardium elatum*, Shig
26 - Pink Murex *M. erythrostoma*, Swinson.
Calliostoma sp. *C. palmeri*, Dall. Creamy.
Conus
Red *Tellina*
- 9 - *Turritella T. gonostoma*, Valen
Turris californiana

ALGAE

Shells:

- Polinices recluziana*
Crucibulum spinosum
Big red burside
Conus regularis
Pitar alternatus
Venus pulchra, Brod.
Solus of *S. rosaceus*.
Spindle shell large white.
Terebra of *T. variegata*
Periploma plumicula, Shig.

Collector

Lee O. Miles

Rypt clam.

Heavy conc. ridge. A chord

Thin shell, bent over, 3 1/2"

Collection SC 24

SAN FELIPE, B.C.
North E

March 10th, 1952

Collected briefly (not a low tide) at Beach "E", well north of previous collections north of SAN FELIPE and its mountains - From the Service Stations at the entrance to town, south along paved highway # 5 for 7.7 miles; thence east on a dirt road 0.4 mile to the Old Highway (dirt); thence north; at 0.1 miles could have turned east to beach but did not, continued north 1.7 miles and turned east to beach parallel to an arroyo for 1.4 miles.

The beach at this point is sand and gravel with silt and clay much in evidence, apparently increasing as go north toward the head of the Gulf and the mouth of the Colorado River.

The alluvial cliffs fronting the beach have been gradually getting lower and have disappeared at Beach "E".

Many shells are present, semi-fossiliferous, blue from the clay in which they have been embedded; of present day varieties.

Collections at high tide and at storm marks include:

Ficus

Kellettii?

Aletes

Crucibulum

Pecten

Cardium

Black Murex

&c.

Collector

Lee O.Miles

Collection SC 25

SAN FELIPE, B.C.

Punta Diggs

April 1st, 1952

South of PUNTA DIGGS, on sand flats exposed at -0.5' tide, and at high tide mark on steep upper beach. Mostly in Zones 2 & 3, Zone 4 not exposed at this tide. See SC 18

Collections include: *Passerinus leucops*

Live - *Venus pulchra*, Brod.

Hermit crab in Pink Murex shell.

Olive *Oliva incrustata*

Conus *regularis*? Heavy brown unbroken stripe, on orange.

Small crab

Sand Dollar, small, green, keyhole.

24 - *Natica lactea* *Polinices uber*, Valenci.

Olivella dana, Murex

Donax *varicostatus*

Clam, small, brown. *Cardita affinis*

22 - *Terebra* 9/4 *T. variegata*, Gray.

Shells only -

Turritella

Cowrie

Bulla

19 - Small clam *Chione girdia*, Brod. & Shy

Blue crab cast.

26 - Pink murex - *Murex erythrostigma*, Swanson

Chione fructifraga, Shy

Protactea grata

Jingles

Balanus? Large, red.

Chione girdia (clams)

Collector

See O.Miles

Semi-fossilized -

Tellina bygonensis

Pecten

Polinices reclusiana

Shells only.

Tellina sinuata, C.B.A.

Tellina sp.

Tellina californiana

Cruxidula sp.

Heterodonax

Pitar alternatus

Pitar alternatus sp. fine conc. scaly.

Venus pulchra same " "

Collection SC 26

SAN FELIPE, B.C.
North - "A"

April 2nd, 1952

North of SAN FELIPE MTS at Station "A". Because of tide, unable to get far out on sand bars, collected mostly on inner bars and among small granite boulders, and in pools. See also SC 10, 11, 15, & 19.

Specimen

No. Collections include: *Donat novoblicula*

Tegula rugosa

Blue Crabs in pools.

Cardium sp.

Small crabs below boulders.

18 - *Acanthina angelica*

Mussels

Nucula leucophaea

Protothacus *P. grata*

Octopi

Balanus

Ostrea - *O. angelica*, Rock.

Jelly Fish

Sponge on ~~*Thais floridana*~~ ^{on} *Solenostearapallida*

32 - Crucibulum *C. spinosum*, Sbj

Drills

Sea Anemone on bottom of boulder.

Yellow polyp?

Algae, *g-v*

Pitar alternatus

Collector

Lee O. Miles

Collection SC 27

SAN FELIPE, B.C.
North - "D"

April 3rd, 1952

North of SAN FELIPE MTS to Beach "D", driving to cliff top, thence down gully cutting thro these alluvial cliffs to shore.

Tide - 0.3', less than half of bars exposed. Surf moderate, but water muddy.

Accompanied by a Mr. Nichols, malacologist of Riverside, Cal.
See also SC 16

Collections include:

~~Polinices~~ banded, brown. *G. Natica bifurcata*
Chione fructifraga, Sby. Heavy large clam.
Balanus

~~Mytilus~~ *modiolus guyanensis*, Lamarck
~~Thais floridana?~~ *Solenostoma pallida*.

Crucibulum *spinosa*

Black Murex; large, heavily barnacled. *M. radix nigritus*

~~Cerithiidae?~~ *Ierobra* 9/7 *I. variegata*

Natica chemnitzii, Pfeiffer.
Olivina incrustata

Collector

Lee O. Miles

Collection SC 28

SAN FELIPE, B.C.
Punta Diggs

April 4th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars exposed at low tide, and in intervening lagoons and tide streams.
See also SC 20, 21, 22 & 23.

Specimens

No.

Collections include:

Hermit in Polinices reclusiana.
Hermit crab)
Sea Anemone) all on a Black Murex shell.
Hydroids)

3 - ~~Natica lactea?~~ *Polinices seber*, Valen.1 - Banded Polinices, *guy.* *Natica chamnitzi*, Pfeiffer.3 - Polinices sp. Large brown. *P. reclusiana*, Deshayes

Clam, small brown, like Pismo. *Linga byrenensis*
~~Heterostoma bimaculatum~~
Olive

24 - *Olivella dama*, Murex

Gorgonid, red

Gorgonid, yellow

Black Murex *M. rotif nigratus*

Also shells of above, empty, and others -

Pecten, flat valve.

Pecten.

Collector

Lee O. Miles

Collection SC 29

SAN FELIPE, B.C.
Punta Diggs

April 5th, 1952

South of PUNTA DIGGS, east of Radar Station.
Steep upper beach of sand and gravel, backed by low alluvial cliffs, in turn backed by sand dunes. At foot of steep beach, mostly Zone 1 and 2, sand bars with usual lagoons are exposed at low tide in Zones 3 and 4. Some boulder fields, Z 3.
See also SC SC 18 and 25.

Specimen
No.

- Collections include: *Anas carolinensis*, Forst. (2 in 1 block)
Cerithium stercus-muscarum, Valen.
Pteria, wing shell. *P. sterna*, Gould.
Cling Fish
Other small fish
Eggs, yellow, in matted cords.
Crab case
Gorgonids, pale.
Crabs, small black, heavy claws; in boulders.
Hermit Crabs
~~Thais floridana~~ *Solenostoma pallida*, Brod. & Phil.
Black Murex, especially small, white. *M. rotig-nigratus*.
3 - Polinices plain, brown *P. reclusiana*, Deshayes
4 - " banded *P. bifasciata*, Gray.
14 - Nudibranchs? *Hammonia stroupi*, Baker. Bubble shell
Olive - *Olivina incusata*, Solan.
Olivella - *O. dama*, more
Sea urchins, 2 species?
Littorines, speckled.
Clams, small, asst'd; white, blue, pink, brown.
Atrina, rough, in boulder fields.
Scotch Bonnet, 2 mating at foot of steep beach, taken by Browns.
SHELLS:
~~Thais~~, large mouth, orange interior. *Acanthinus muricata*, Brod.
Spindle shells, small, with Pagurus.
Cardita affinis.
ALGAE -
Codium fragile

Collector

Lee O Miles

Collection SC 30

SAN FELIPE, B.C.
Punta Diggs

April 6th, 1952

South of PUNTA DIGGS, east of Radar Station.

Same as SC 29, but out on first sand bar (from shore) and in intervening lagoon. Practically no silt - a long lagoon, shallow, much of bottom fairly free of ripple marks, sandy, with a little surface silt in patches.

See also SC 29.

- Specimen # 7 - Collections include: *Cerithium procerum*
 Conus sp, where some silt. *Conus regularis* Sibz
 Black Murex, most common, small. *M. rotis nigratus*.
 Pteria, wing shall, among boulders with above. *P. sterna*
 Atrina, rough, boulder field.
 Olive - plentiful, along and in lagoon, both shores. *O. incrustata*
 3 - Polinices, large, plain. *P. alchuzian*, *Deschamps*
 6 - " Grey, mottled
 5 - " White *P. ruber*, Valen.
 4 - *Natica* striped br & wh. *Natica fasciata*, Gray.
 Tehtys
 Crab, pebbled claws
 Other crabs
 Sinum ~~scapulosum~~ - Ear Shell. *S. debile*, Gould
 55 - Clam, brown, Pismo like. *Tivela byrenensis*, Ray
 Octopus
 Cling Fish
 Small frilled fish
 Shrimp. dark green.
 Gorgonis, Red
 24 - Olivella *dama*, Murex
 Nassarius parva?
 Spindle shells
 Sand Dollars, small keyhole.
 Worms, distended, in sand and silt, flower-like.
 Brittle Stars
 Twenty Ray, knobby stars.

ALGAE, 2.

Solen rostratus

Collector

Lee O. Miles

Collection SC 31

SAN FELIPE, B.C.
South

April 9th, 1952

South of SAN FELIPE on sand flats outside the oyster bars, and in intervening lagoons. Area too well picked over by natives as well as tourists.

See also SC 6,7,8,9,10.

Collections included:

Sand Dollars, keyhole, large, brown.

Olive

Neck of largs clam seen on inner margin of sand bar 2nd out from Shore; unable dig him out account sand caved in, and quite deep.

ALGAE.

Collector

Lee O.Miles

Collection SC 32

SAN FELIPE, B.C.
North - "A"

April 10th, 1952

North of San Felipe Peaks, at Beach "A";
in early morning at low tide;
to the south of the main arroyo draining past the mountains,
among the boulders in Zones 1 to 3.
See also SC 11, 15, 19, 26.

~~Specimen~~
noCollections include: *Murex radix nigritus*7 - Conus, where sand is overlain by silt, thinly. *C. regularis*, Sowerby63 - Olive *Olivella incrustata*, Solen. (*O. angula*, LaMurek)*Olivella O. dama?*

Worm tubes

Crabs, small, round, marked.

3. *Polinices* sp. Large, plain. *P. reschaziana*, Deshayes

Spindle - ✓

9 - *Turritella gonostoma*, Valen.62 Black Murex *Murex radix nigritus*14. Bubble Shell - *Hammonia strongi*, Boker

ALGAE, on boulders.

Shells only -

*Prototheca quata**Pitar alternatus**Cardita affinis californica**Cardium pumila**Heterodonta bimaculata*

Collector

Lee O. Miles

April 11th, 1952

At SAND BAY, , between PUNTA FERMIN and PUNTA DIGGS;
reached by by dirt rad south of SAN FELIPE for 22.8 miles to
SULPHUR MINES, thence on south 1.5 miles, then east 4.4
miles to Water Hole and corral near beach, thence north
parallel to beach for 1.8 miles to south edge of SAND BAY.
This Bay, see SC 17, is almost circular at high tide;
but at low tide is an expanse of exposed sand bars, extending
seaward over $1\frac{1}{2}$ miles. At the west edge of the "bay" are
several exposed boulder fields. Silt and clay are found in
patches, especially in some of the tidal run-offs.

- Cerithium* sp.
Collections include: *Protoloma* *grata*
no. On Oyster bars (Boulders) *Crepidula incurva*, Brod.
Oysters
Crabs
Black Murex in silt nearby. *Murex rubeus nigritus*
Pink Murex, preying on Conus. *Murex erythrostoma*, Swainson
Sea Anemone *(M. bicolor, Valen.)*
Twenty ray beaded star fish
42 - *Acanthina muricata*, Brod. *Larynx unicolor*.
On Sand Flats, especially well out: *Finea byrenensis*, Ray.
Conus, large species, a few.
8 - *Conus* ~~regalis~~ *spotted*, many.
4 - *Polinices*, brown banded *Natica bifasciata*, Grey
5 - " *whet* small white. *Natica clausenii*, Pfeiffer
3 - " plain, brown. *P. reclusiana* - Deshayes
63 14 - Olive; most plentiful. *Olivella incrustata*, Solan. (*O. adgula*, Latreille)
24 - *Olivella dama*, Mawe
Donax - *P. umbilicula*, Hanley
On sand flats, closer to shore: *Solenostoma pallida*
7 - *Turritella*, small. *T. gonostoma*, Valen.
x - *Olivella* *volutella* *known*. *O. volutella*
Sea Anemone, long, creamy, buried. *Cerithium stercus-muscarum* Valen.
Polinices, large brown. *P. reclusiana*
Donax
22 - *Terebra* *cf. J. variegata*, Grey
In silt on sand:
Conus, large
Polinices, large brown. *P. reclusiana*

A rich collecting area.

Collector

Lee O. Miles

Values of Pecten.

Collection SC 34

SSAN FELIPE, B.C.
Sulfur Mine.

April 12th, 1952

From camp at water hole and corral near mouth of ARROYO ESTRELLA (Star Gulch), collected south along beach for some 4 miles. Sand dunes above alluvial cliffs, low here; below cliffs, sand bench, low and narrow, storm swept, then high tide msrks at top of steep fore shore, Zones 1 & 2; and below this, seaward, 2 to 4 sand bars with usual dividing lagoons and bisecting tidal run-offs; with occasional exposed tongues of lava boulders running out to low tide into Zone 4.

- Specimens
7-Collections include: *Loricarium elatum*.
On Sand Bars: *Haminoea strongi* (Bubble shell) Baker.
Olive *Oliva angusta*, Lamarck. *Pecten circularis*, Sh.
24 - Olivella *dana*, Milne
Polinices, plain brown. *P. reclusiana*, Deshayes
Sand Dollars, keyhole, green.
" " " brown, arrow shaped.
" " " circular, large.
58 - Scotch Bonnet, buried like Polinices. *Cassia centroquadrata*, Valen.
Twenty Ray Star Fish, many.
On rocky boulder fields:
52 - Pteria sterna, Gould. Whigleyi *Cerithium stercus-muscum*
Atrina, rough. (Pitted dark filament, knobby)
1 - Strombus *pugilist* *gracilis* *Cyprina* 1/4 *C. perforans*, Valen.
" *alatus*? young of above.
ALGAE, broad leaf, with
Bryozoa on above.
Compound Ascidae, red.
" " yellow
Worm, red.
" black.
15 - Crab, heavy claw 3-4"
12 - Spindle shells, 2" to 3". Alive. *Imusclaria pamboloni* - Lowe
Star Fish, long spined, 5 arms. *Utricula maculosa*, Sh.
7 In lagoons. Fish - *Aboma* sp.
Pink Murex
Sea Urchins, long heavy spines.
" " long, slender purple spines.
Hermit crab, large, in Black Murex.
Twenty ray Star Fish.
10 *Solenostoma pallida* - Brud. & Sh. - on bars.
Whale skeleton midway on beach, near high tide mark.

22 - *Terbra* 1/4 *T. variegata*, Gray.
Prototoca grata

Collector

Lee O. Miles

April 13th, 1952

See also SC 17 and 33.

North of Camp at Water hole and corral in ARROYO ESTRELLA,
east of Sulphur Mines, in SAND BAY and on outer bars as much as
 $1\frac{1}{2}$ miles off high tide mark.

- ~~Specimens~~ Collections include: *Protoschisma grata*
 No. From bars, lagoons and run-offs $\frac{1}{2}$ to 1 mile offshore.
 8 - *Conus regularis* (Spotted) *C. Ximenis* - Gray
 63 - *Olivella angula*, Lamarck - or *O. inconspicua*, Solan.
Olivella dama, Harris
 55 - Clam, brown to 2.5 inches. *Tivela byrenensis*, Ray.
 Penatulids
 Spider Crabs
 Sand Dollars, keyhole, arrow.
 " " " small, green
 " " " large, brown, circular.
 4 - *Polinices*, banded. *Natica bifasciata*, Gray
 Donax - *D. nasalis*
 ALGAE, like knotted string
 6 - *Natica chemnitzii*, Pfeiffer
 From bars and lagoons inshore, in "Bay", on or near Oyster Bars.
 Black Murex - *M. rotif nigratus*
 7 - Cones, large striped, in pairs. *C. regularis*, Sby
 #3 - *Polinices*, large, plain. *P. reclusiana* - Deshayes
 10 - Drills - *Solenostoma pallida*, Brod. & Sby
 Oysters
 Balanus
 Cerithidium
 Nassarius parva?
 Hermit crab in *Polinices*.
Turbo sp.
 From Splash Zone, in moist sand:
 Fiddler Crabs.

Turricula maculosa - Collector
Crucibulum spinosum - small, knotted.
 Lee 0. Miles

Collection SC 36

SAN FELIPE, B.C.
Punta Diggs.

April 15th, 1952

South of San Felipe and south of DIGGS POINT AND MTS, just north of the beach "road" past the old Radar Station - north from this road about 1 mile.

Worked sand bars and boulder fields; the inner lagoon and the foot of the steep shore, Zone 2, especially prolific.

Specimens

Collections include:

- no. 42 *Acanthina muricata*, Brod. Large orange unicorn.
 63 Olive-*Olivella macronata*, Solan. (*O. angula*, Forster)
 3 Polinices, plain brown. *P. reclusiana*, Deshayes
 4 " banded *Natica fasciata*, Gray
 " grey, mottled. *Natica chemnitzii*, Pfeiffer.
 Black Murex - *Murex ruber nigritus*
 Olivella *O. duma*
 Gorgonids
 Atrina, rough -
 55 Clam, small brown, Pismo-like. *Tivela byrenensis*, Ray.
 10 *Thais flabridana*? *Solenostoma pallida* - Brod. & Shy.
 28 - Keyhole limpets *Diadora inaequalis*, Shy.
 Crepidula *C. nives* cf. *C. perforans* Valen.
 Chitons - *Chaetopleura* (*Pellichiton*) *lamiginosus* (Gr.) Pils. ⑤
 Turritella *T. gonostoma*
 Bulla sp. Look like nudibranchs.
 Crabs
 57 *Simun debile*, Gould. Eri Shell
 7 Cling Fish - *Molassestoma* sp. - cf. *M. delandii*
 7 Fish, small, from under boulders. *Cotylis* spp.
 Shrimp.
 Croakers under rocks; not taken.
 5 Polinices *uber*, Valen. (white)
Venus pulchra - shell only
Pteronotus *sternus* " " Collector,
Terebra cf. *T. variegata*
Strombus gracilis -
 Spindle.
 Lee 0. Miles

Collection SC 37

SAN FELIPE, B.C.,
North "A"

April 16th, 1952

North of SAN FELIPE MTS, at Beach "A";
worked sand bars and boulder fields, north from the arroyo
down which reached the shore, to and past beach "B".

Collections include:

- Black Murex
- 3 - Polinices, plain, large. *P. rosalia*, Dacotay
Polinices, grey, mottled. *N. chemnitzii*, Pfeiffer.
- 32 - *Crucibulum spinosum*, Shy
Collector

Lee 0. Miles

Collection SC 38

SAN FELIPE, B.C.
South by boat.

April 17th, 1952

South by small boat to N. end of PUNTA DIGGS, to a double
cove, both shallow and exposed; tide not low, little result;
but shells on exposed beach indicate rich yield at a lower
tide. Today, only one bar exposed.
South of this double cove, strata of fossiliferous rock
slants down into water gradually. Not greatly worn.

Collections include:

- | | |
|----------------------------------------------------------------|----------------------------------------------------------------------|
| Crabs | Black Murex - <i>M. radix nigritus</i> |
| Nerita | Tegula |
| Chitons | Limpets |
| 32 - <i>Crucibulum C. spinosum</i> , Shy | 65 - <i>Oliva incrossata</i> , Solan. or <i>O. angula</i> , La Moupe |
| <i>Dosinia ponderosa</i> grey 65 - Clam, heavy, white; valves. | 9 - <i>Turritella T. gonostoma</i> , Valen. |
| Oyster | <i>Crepidula adunca</i> |
| 81 - Pea borer <i>Lithophaga sp. juvenis</i>
See S.C. 2 | |
- Collector

Lee 0. Miles

Collection SC 39

SAN FELIPE, B.C.
Rocks at Light.

April 22nd, 1952

In SAN FELIPE, on rocks below Volcano Light, opposite
Miramar Cafe. Rocks volcanic, no sand bars, some pockets.

Specimen

- No. Collections include: *Protothaca grata*
Atrina shell.
29 - Limpets, blue centers. *Acmesa mesoleuca*, Menke
Crucibulum
Black Murex, in pools. *M. radix nigritus*
Hermit crabs in Black Murex shells
Crepidula nivea!
83. 84 - 82 - *Heterodonax bimaculatus*, Lin. Ant's color. On all esp. coasts.
Collector
Lee O. Miles
-

Collections SC 40

SAN FELIPE, B.C.
N. of 1st N. Peak.

April 23rd and 24th, 1952.

In small cove north of first north peak north of SAN FELIPE,
at end of dirt road passing camps along shore at north end of town.
Sand dunes merge into upper beach, not as steep as usual on
this shore; the upper sand and gravel beach with boulder (granitic)
fields sloping down gradually to sand bar and adjacent lagoon;
some shallow silt in this lagoon.

- 31 Collections include: *Crepidula incurva*, Brod.
Balanus
Oysters, few.
Black Murex *M. radix nigritus*
Conus, with silt, as usual. *C. regularis*
Limpets *Acmesa mesoleuca*, Menke
Margarites
3 - Polinices, plain, brown. *P. rosalyana*, Schlegel
~~Protothaca~~ sp. *Chione* - *Venus pulchra*
Petricola
Barnacles, red.
19 - *Lagula rugosa*, A. Adams
Collector,
Lee O. Miles
Protothaca grata
Cardium procerum
Kyphosyllis - *Diadema inaequalis*, Sten
Acmesa Spide.

Collection SC 41

SAN FELIPE, B.C.
Punta Diggs, S.

April 25th, 1952

At SAND POINT south of PUNTA DIGGS, on sand bars reaching east and north, with slight curve back toward shore, with intervening lagoons shallow and without silt except in occasional shallow patches.

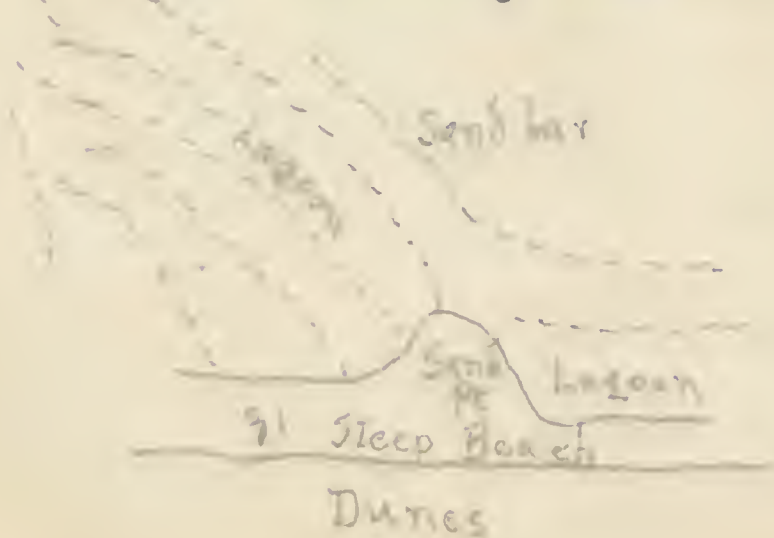
The end of the bars where pelicans roost during low tide is over 2 miles from shore.

The inner beach is about 75 feet wide, 20 degree slope.

See also SC 20, 21, 23, 28, 41.

Specimens
no.Collections include: *Neosimnia inflexa* *Neosimnia intlexa*, Sby

- 63 - Conus
Olive *incroscata*, Solan. or *O. angula*, Loman.
Olivella *dams*, more
4 - Polinices, *gray*, *Natica bifasciata* - gray.
#3 - " plain brown. *P. reclusiana*, Deshayes
#4 - " banded gray *Natica fasciata* - gray *chemnitzii*, Pfeiffer
#5 - " white, small *P. ulva* - Valen.
Donax *navalicula*
Crabs
Sea Squirts
61 - Scotch Bonnet, shell only. *Cassia centroquadrata*, Solan.
Ehsis
Pink Murex
Black Murex *M. ruber nigritus*
Turritella
64 - *Laevicardium elatum*, Sby. Giant yellow Cocker.
Sponge
Gorgonia, white
Aphrodite, sea mouse; in sand, burrows like Olive.
Spider crab
32 - Crucibulum shells *C. spinosum*, Sby
Hydroids
13 - *Bulla gouldiana*, Pils.
Turricula maculosa Collector
Pecten volva
Turricula byrenensis, Ray Lee 0. Miles
Pelican Roost
Venus pulicaria

SAND Point
BeachSchematic -
Not to scale.

April 26th, 1952

From camp at Waterhole and corral in ARROYO ESTRELLA east of Sulphur Mines and 23 miles south of SAN FELIPE, south along beach for about 5 miles, nearly to PUNTA SAN FERMIN.

Fore shore usual steep sand and gravel beach, narrow. Bars alternate with lagoons and tidal run-offs, and in patches, contain some clay and silt.

Many rather extensive boulder fields reach from the steep foreshore out to Zone 4, low tide, and beyond. Many of these fields are either being newly uncovered, or newly covered by sand; perhaps both.

Specimen
no.

- Collections include: *Jaguler globular*, Corp.
 Sea Urchins, fine long spines, purple.
 " " Heavy spines, greenish. *Encidaria thomasi*, Vol.
 Sponge, red, in Zone 2 (Balanus), in beds.
 Bryozoa, red
 Coralline hydroid, purple.
 Trivia shell. *J. solanderi*, Gray
 Spindles - *Diadema* *pembertonii*, Lowe.
 Conus regularis *Keyfontii* *Dalli*
Olivella incornuta, Edm. or *O. angula*, Lamarck.
 Olivella *dama*, name
 3 Polinices, plain brown *P. reclusiana* *Sty. Deanehaeghe*
 6 " Grey *N. chemnitzii* *Pfeiffer*
 # 5 " White, small - *P. sebae*, Valen.
 55 - Clam, small brown, like *Pismo* *hirsuta byrenensis* Ray
 65 - *Dosinia* sp. *gondwana*, Gray Carcass of 10' shark
 Donax
 Strombus *pagillus* *S. gracilis* Whale skeleton
 " *alatus* shell. Discs from backbone of PORPOISE
 9 - Turritella *T. gonostoma*, Valen.
 12 - Pteridaster *sterna*, Gould Disc from Whale?
 Thais, large orange aperture. *Acanthina*
 Atrina, rough.
 13 - Bulla shells *gouldiana*, Pils.
 Crabs, Z 3
 Fiddler crabs, Z 1 and Splash Zone.
 Aletus?
 Starfish, like *Henricia* a bit.
 Spider crab, small
 ALGAE, small, bottom of boulders.
Murex *radix nigritus* Collector
 22 - *Terebra* c/f *T. variegata*, Gray. Lee O. Miles
Pecten *vulvus*
Conus *ximenesii*
Turbo *byrenensis*

Collection SC 43

SAN FELIPE, B.C.
Sulphur Mine.

April 27, 1952

From ARROYO ESTRELLA, collected north over 2 miles along beach to opposite mouth of SAND BAY, mostly on first bar out. Bars run north parallel to the coast, are of nearly pure sand, hard packed, without any boulders or silt. Fully exposed to all winds on the Gulf. The fore shore is steep, as usual, and the storm bench above it is wider than usual. No alluvial cliffs, but sand dunes covered with sparse brush are above the storm mark. As near SAND BAY, the bars and lagoons bend N.E. away from the shore.

Collections include:

In first lagoon below steep fore shore:

Specimen Sand Dollars, green circular keyhole, juvenile.
" " brown, arrow shape, " juvenile, size 10¢ to 25¢.

On sand bars off shore:

- Olivella ~~dome~~, *hove*
#2 - - Strombus ~~pugilis~~ kicking out of sand near mid-bar. *S. gracilior* Sby.
Oliva ~~incroscata~~, *Solen.* or *O. angula*, *La Murex*.
Donax
Clam, brown, Pismo-like. *Tinea byrenensis*, *Ray*
Crabs, mottled, chunky; squirt.
9 - Turritella, in hard sand. *T. gonostoma*, *Valen*
Cerithidium
Jack knife clam; move along surface 12" to 14", then dig in.
Black Murex; covered with Algae and Hydroids. *M. ruber nigritus*
Limpets, white, conical, attached to bottoms of old shells
or sand dollars, which they lift off sand.
Star Fish, sand type, fragile.
6 - Conus ~~regalis~~ *Ximenes* ~~gay~~ in hard sand, apex down, canal just out.
Sailor's Ear, valve only.
Pteria sterna, Wing Shell.
Pecten shells
Hydroids
Crabs, swimming.
Rope Compound Ascidea, long ropes, with nodes, not attached.

ALGAE

Collector

- 60 - *Spiz murex*
M. recurvirostris lindus,
Cay. Lee O. Miles
58 - Scotch Bonnet - *Cassia centragnadrata*, *Valen.*
61 - Fig shell, Purple - *Ficus ventricosa*, *Sby.*
- *Macoma pacis*, *Pils.* Small white clam.
Crucibulum spinosum, *Sby.*

Collection SC 44

SAN FELIPE, B.C.
N. of 1st N. Mt.

April 29th, 1952

Near SAN FELIPE, north of the first north mountain;
Boulder field, in Zones 1, 2 and upper 3. Boulders almost
entirely granitic, well worn and rounded.

Collections include:

- 16 - *Anachis varia*, Sby.
 69 - Barnacles - *Balanus cariosus*, Pallas (Boys, 695.)
 30 - *Crepidula* cf. *C. perforans*, Valen.
 Black Murex - *Murex radix nigritus*
Oliva incrossata, Solan. or *O. angula*, Lamarck.
Solenostoma paelida
 Chitons } *Chiton virgulatus* Sby. (5)
 " }
 " }
 " }
 Limpets
 " }
 44 - Clam, bent? nose, heavy shell. *Semele striosa*, C.B. Adams
Crucibulum spinosum, Sby.
Amphissa versicolor
 Button shell
Tegula J. rugosa. C. Adams

From Senor Avalos, shells only: See SC 43.

- 60 Murex, spider *M. neurostus lividus* Corp.
 61 Ficus *ventricosus*, Sby.
 58 Scotch Bonnet. *Cassia centroquadrata*, Valen.

Collector

Lee O. Miles

San Felipe

SC 45

84
7 Oct '54

Donated by "Luz & Herman".
Deep scallop, flat top.
Melampus - fine spec.
Brown Corals - Balanophylla?

Donated by Dennis Avolon.
2 dried flat crabs?

Collected - On W. sandy beach, Zone 4 to storm
limer, beach specimens - Station "B"

Keyhole Arrow Deep dollars - many
Mussel
Protothaca grata

Gorgonid - red.

In on new dirt road to Stand & senicobias at cliff top.
About stn "B", Worked North $1\frac{1}{2}$ miles.

SC 46
San Felipe

8 Oct '54

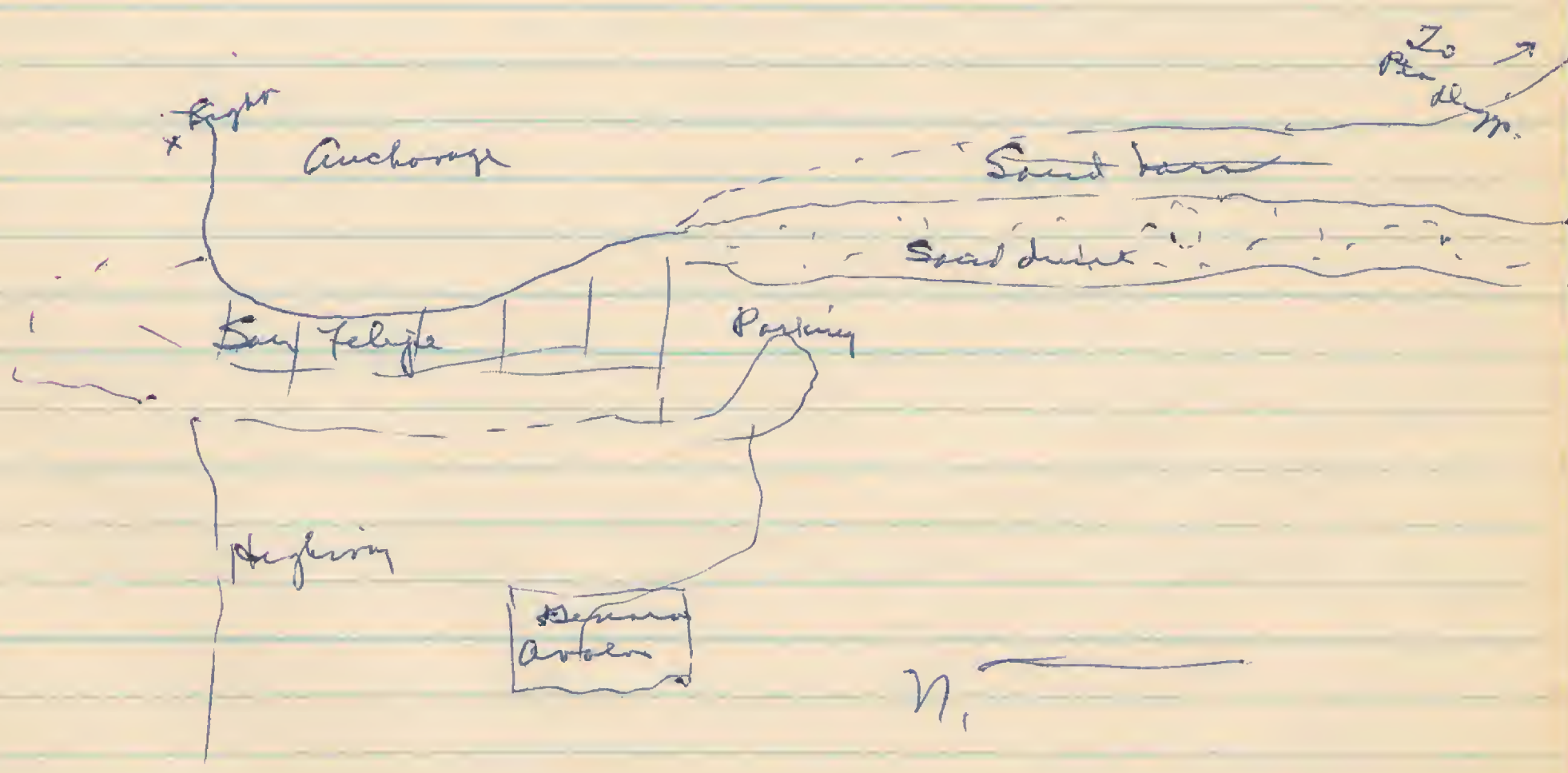
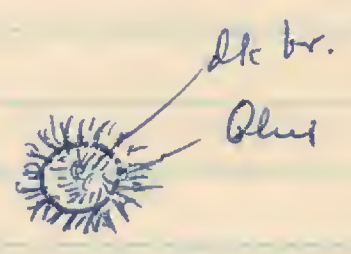
On sand bar S. of San Felipe Anchorage - to about 1 1/2 mile. south. Tide not really low. Found 3 at best.

Live specimens

- Oliva
- Olivella
- Nassarius
- Cerithium
- Gray notica.

Notica chenuitzi,

"Anemone", floating, no stalk.



SC 47

86

San Felipe

9 Oct 54

On sand-silt bars N. of San Felipe Mts.
At beach "B" toward "C" -

In boulder fields, then beyond to sand bars
with silt areas 50% of area, esp. in lagoons.

Collected -

In boulder field -

Black Murex, med. large, + clean, abundant.

Early Crucibulum, Protothaca, Tegula, etc.

Murex

Protothaca

Tegula

Ostrea mexicana - no O. cortezana observed.

On sand -

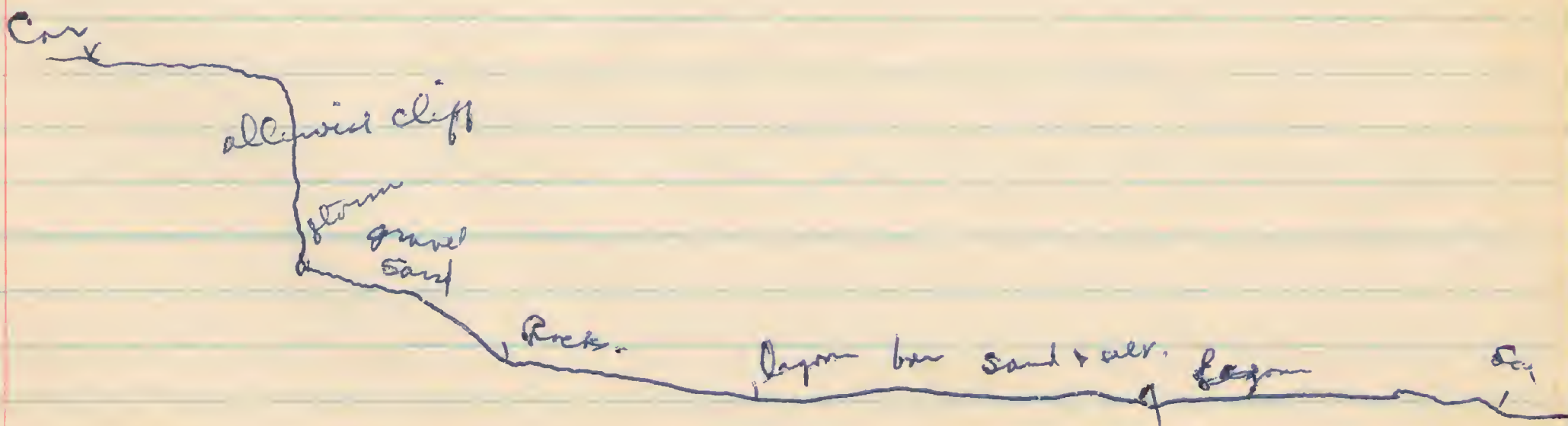
Livella

Bl. murex

Oliva - brown.

Olivella densa

Cross section



San Felipe -

10 Oct 54

South of San Felipe anchorage, just out from
 Ayala Bay, driving to adobe pits.

Sand bars, occasional very small spots of silt.
 Pogonius clean!

Collected -

Oliva

Olivella

Luvula

Other pelecypoda

Speckled snail. Cerithiidae?

Cer. stercor. muscum?

Nassarius leucopus?

San Felipe

11 Oct 54

Collected just north of Vista Azul, on
Rock field - boulders to coarse gravel.
Sand bars, little silt.

Collected:

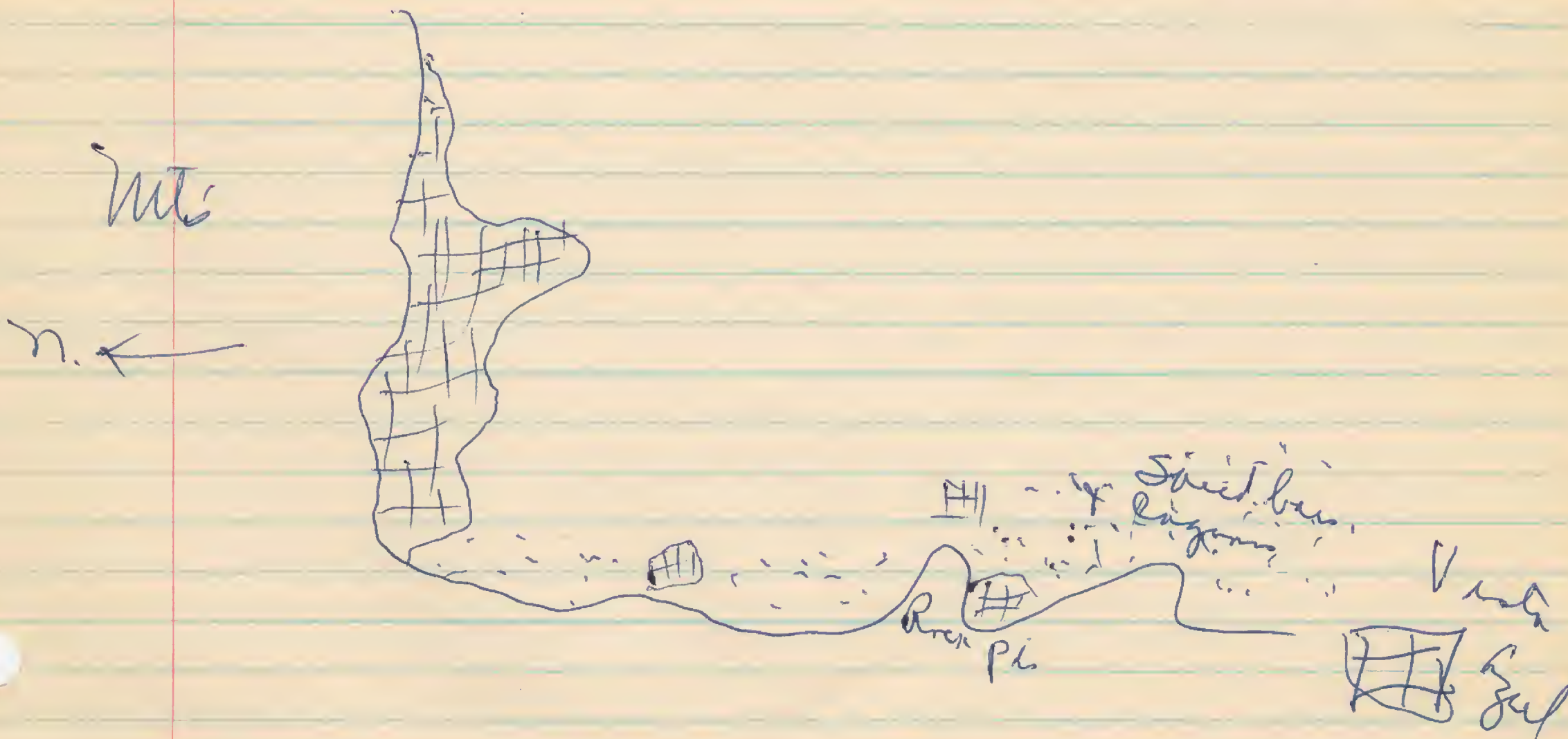
Olivin

Olivella

Speckled am. gastropod

Littor

Note - unable to locate any Lincey shells, even on bar
where found so many in Feb 53.



San Felipe -

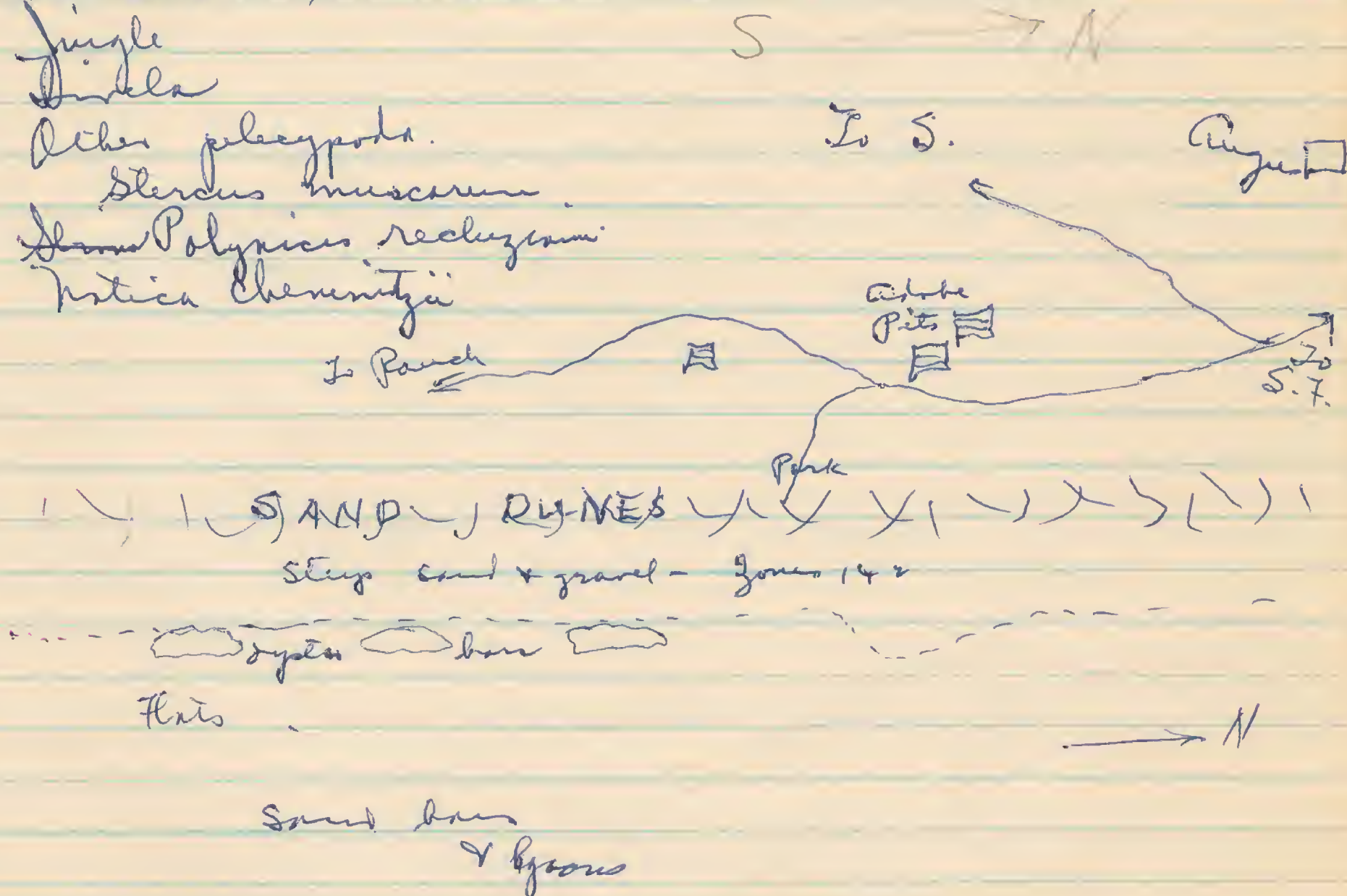
12 Oct 54

Collected just near dusk, outside Lyster bar, tide still going out.

On sand substrate & in same lagoon as SC 48. Shells beginning to move in sand, with consequent slight disturbance of surface - but flashlight too concentrated a beam, and collection rather meager.

Collected:

- Olivia*
- Olivella* sp.
- Trochus*
- Astraea mexicana*
- Tringa*
- Tringa*
- Other pelecypoda.
- Stercorarius*
- Polynices recheizianus*
- Tringa cheneritzii*



San Felipe

July

Handwritten

90

Gu 1

21 Nov 1953

Guaymas

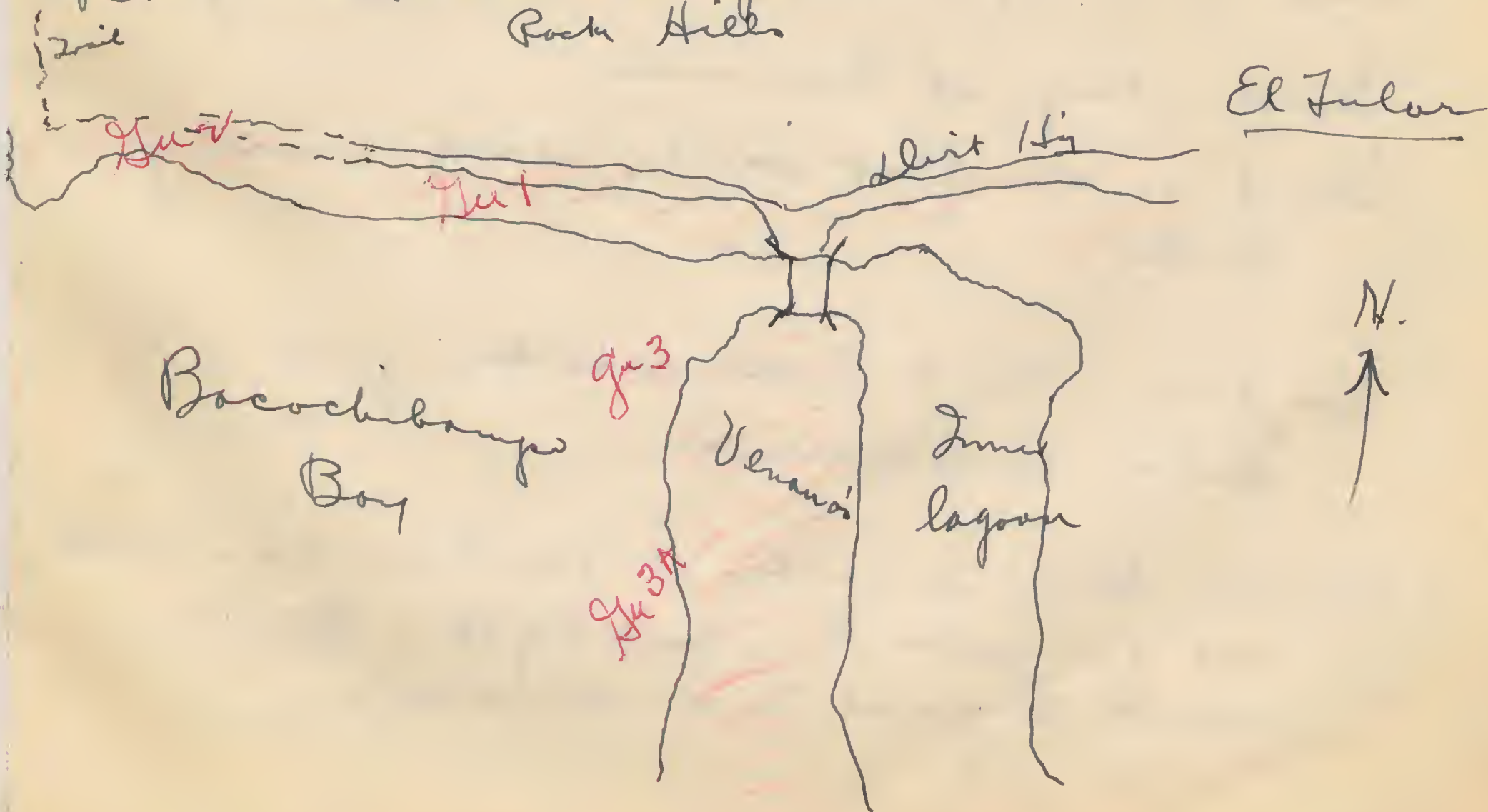
N. shore of Bacochibampo Bay -
from Inlet or N. end of spit, beyond
Venano's Place (Trailer Park) across bridge
over Inlet to Inner Lagoon.

Seni protected outer shore, open
to sea but protected on north & partially
from South.

Boulders on rocks, volcanic, porous.

Little sand.

Little surf; when surf heavy, hits
beach a side swipe.
Rock Hills



Isu 2

22 Nov. '53

Guaymas

Bacochibampo Bay, n. shore.

Same as in Isu 1, but collected further out along shore to rocky point where bay becomes open gulf.

Turning rocks; and in crevices.

Collected of note, 2"-3" brown cowries
Knobby star fishIsu 3 & 3A

Nov 21 to 27 inclusive

Guaymas

Beach, bay, at Venancio.

Isu 3 - on flat sandy beach south from
Inlet.Isu 3a - on & under cobbles just S of
Inlet, at Venancio.Beach here is wide at low tide; can wade
out 100 yards to waist depth. Bottom
sand to gravel to small cobbles.

Jan 4

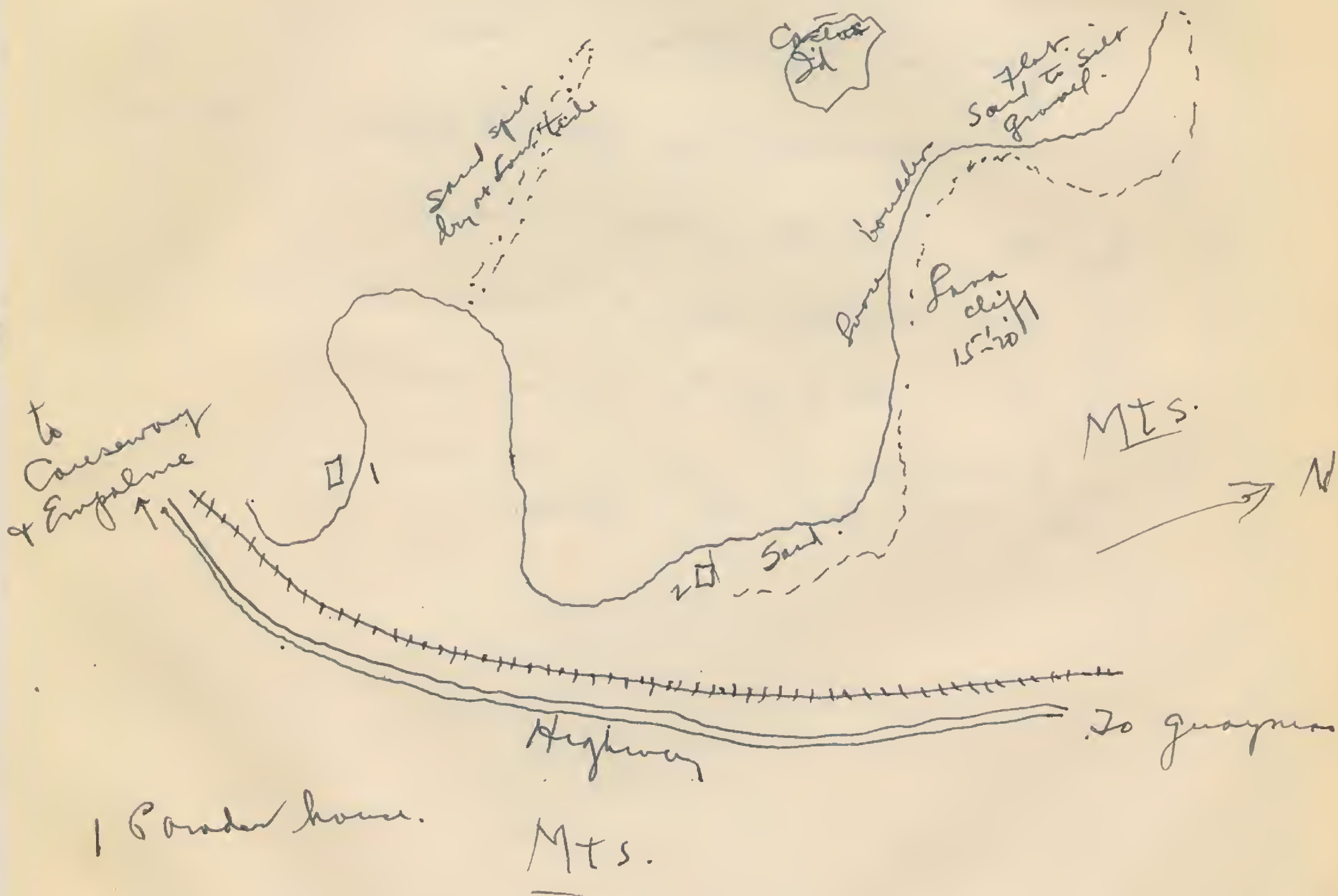
92

23 Nov. '53

Batuecos:

Guaymas area

South of Guaymas, cross RR tracks and
down to silt flat near Cafeteria - follow
back toward town.



Much silt.

Loose boulders on lava red rock - down
to pure silt & sand flats with areas of
cobbles & boulders

Isu 5

24 Nov 53

Butuacas
(Guaymas)
area

Same as Isu 4, but further in
both directions.

Collected 17 Note - brown conures to 3".

Cypripedium annettianum - Hall.

Zone 1, including splash zone. Black.

Z. 2 - boulders and or sand.

Z. 3 - Flats, sand & silt, about 50 - 50

Z. 4 - Mud flats, some sand.

Large boulders 4" - 14" in varying units,
throughout all 4 zones.

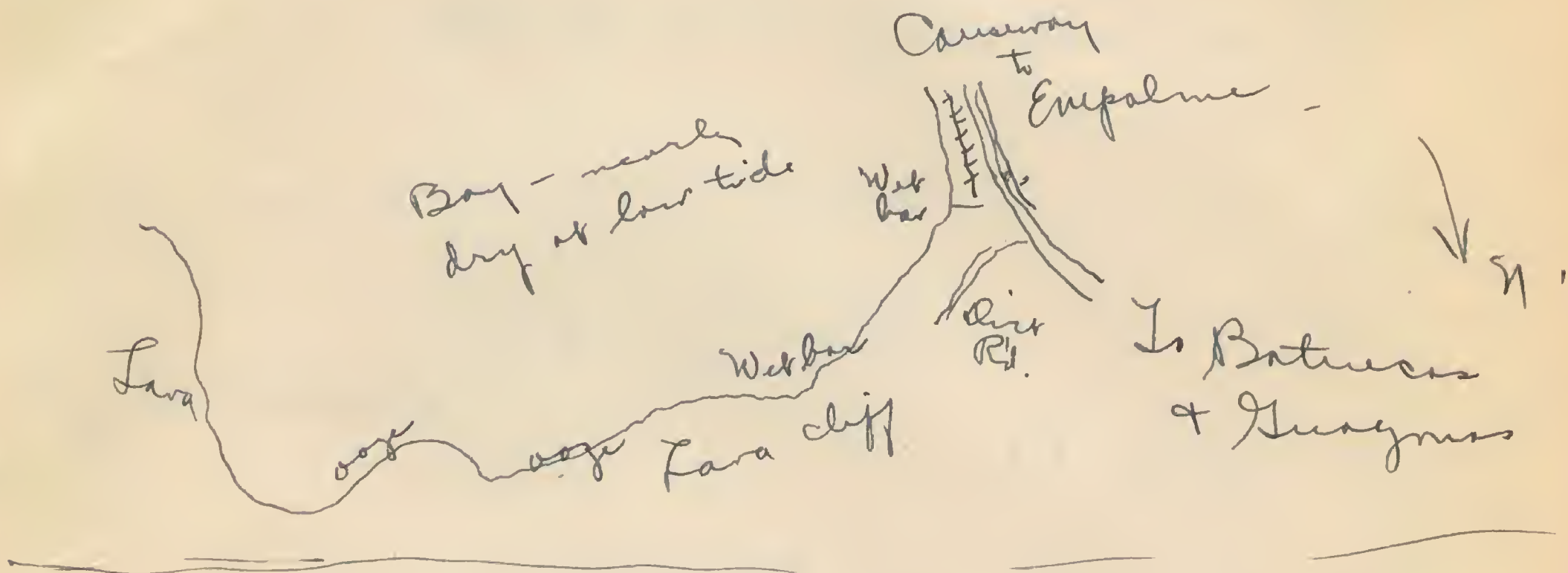
Mar 6

94

25 Nov. '53

Batuecas
(Guaymas area)

From N. end of Enpalme - Guaymas Causeway,
in towards Old Enpalme - easterly.



Mar 7

26 Nov. '53

Bacochicampo,
(Guaymas area)

From Venano's along N. shore of Bacoch.
Bay around point to rocky shores
facing open gulf. Rocky points (lava)
form small sandy coves. 2-4 miles from
Venano's, towards Soldado Bay.

Cobbles & boulders on lava bed rock.
In coves, some sand & gravel with above.
No good tide - Jones 1 & 2 only.

Dec 8

27 Nov. '53

Bacochibampo
(Guaymas area)

Venano's Place, mud & sand flats in
Inner Lagoon.

Good collecting, but smelly.

Dec 9. A+B

12 & 13 Dec. '53

Bacochibampo

A At Venano's Place -

Sand beach with cobbles, ocean side
of spit at Venano's.

Lagodon rhomboides

B At Venano's Place

Lagoon side of spit - Sand flats
with silt in some areas.

Tu 10

94

14 Dec. '53

See Tu 4-5-6

Batuecas
(Guaymas area)

at Batuecas S. of Guaymas, N. of Empalme
causeway.

Sand flats, some 18" boulders, cobbles in
spots, silted heavily in other areas.

Noted - Shrimp commenced in Atreina

Tu 11

15 Dec. '53

See Tu 8-9 &c.

Bacochibampo

at Venenoé, on bars S. side of Inlet to
lagoon.

Pure sand - some areas cobbles, others with
gravel and broken shell.

16 Dec. '53

Dec 12 A & B

Soldado Bay
(Guzmas area)

At Soldier Bay (Soldado) north along coast from Venancio (Bacochibampo) reached by car on dirt "road".

A At east or inner end of main lagoon -
Sand bar, with some silt in spots,
cut at low tide by run-off channels.

B. East end of bay, lava rocks with lava mud
bank - small point S. of main lagoon.

Creamy gorgonids here, with creamy

17 Dec. '53

Dec 13

Soldado Bay

On clean sand bar at Inlet to bay, on
ocean side. Some areas of lava cobbles and
boulders. Exposed at O.O. tide.

Collected at low tide.

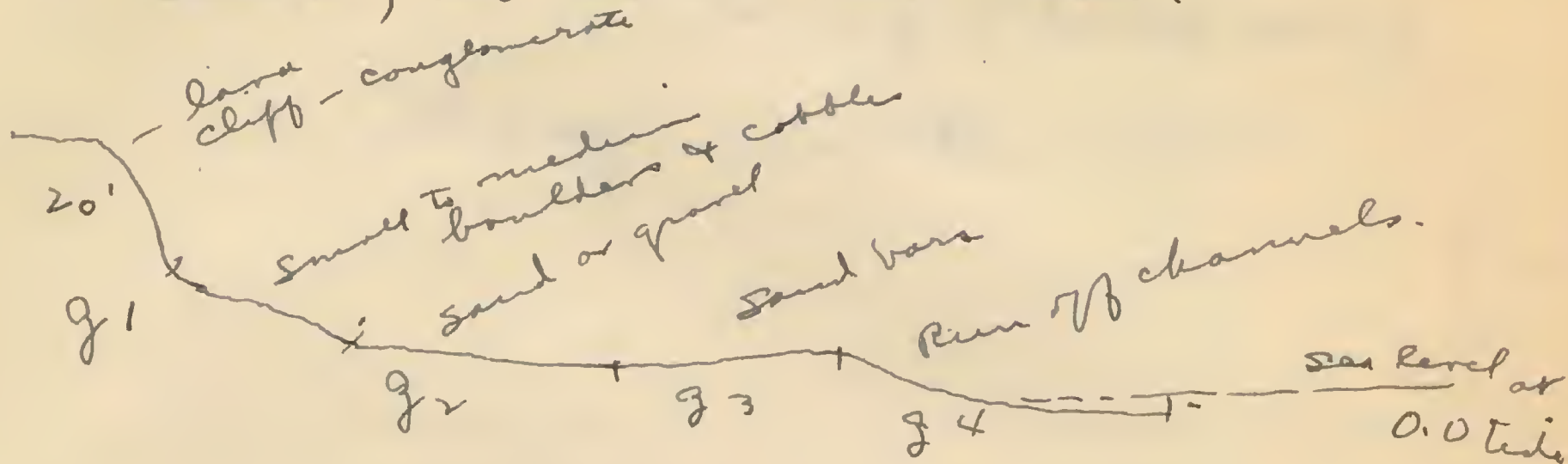
Dec 14

18 Dec. '53

Soldado Bay
(Guaymas area)

S. of Soldado Bay Inlet, on open coast
fully exposed to Gulf.

Lava cobbles and boulders, with fine
sand in coves, on lava bed rock.



Dec 15

19 Dec. '53

See Dec 13

Soldado Bay

From sand bar at entrance, thro lagoons
& silted sand bars to "Island" in main lagoon.

(With Ewings)

Dec 16

20 Dec. '53

El Cochoni
(S. of Guaymas)

El Cochoni beach resorts - S. of Empalme about 2 miles
N concrete Δ, take dirt (graded) road at right, several
miles direct to open beach and Pavilions.

Beach wide, 50'-100', clean & hard. Jones 3rd
drop off quickly.
Of note - Pitar lupanaria.

Dec 17

21 - Dec - '53

Bacochibampo
("Causeway, S.)

On "causeway" near point south end of
Bacochibampo Bay, west of Playa Cortez.

Cobbles & boulders on bed rock, of 3 & 4 with
fine sand & gravel.

Note - Strombus galatea.

Dec 18

22 Dec. '53

Soldado Bay
(Guaymas area)

Soldado Bay - from Inlet, on into lagoon.

A - Just opposite (inside) Inlet camp area
Sand, little silt, not exposed to sea, dry
or low tide.

B. Sand bars outside Inlet, exposed to sea,
dry or low tide.

C. On mangroves in lagoons. Silt on
& in sand,

Dec 19

also 1952

Guaymas, Sonora.

16 Oct. 54
18 Oct 54

Shells purchased from "Heinrichs" & others
for sale there - flat price of 1 peso each regardless
of rarity, size or condition.

Murex braccica -
M. rostratus (~~not purchased~~)
Cymatium ?
M. erythrostoma - quick.
M. - spring.
Liton? May be northern northern,
Imm shells, half grown.
Strombus gracilior -
Ficus sp - not bought.
Cassis - scrub bottom.
Turritella gonostoma " " "
Melanogaster
Oliva (spicata)
Sea horses.

Shells collected, mostly on beaches - from 20 mi
north of Guaymas, to Puerto Vallarta.

Coral at San Blas
Pearl shells " "

Dec 20 -

Oct. 19, '54

to 12/9 -

Various dates -

Picked up at high water mark on Venus's Beach.

Prototheca grata

Strombus

Knobby.

Strombus gracilis (4 hermit crab)

Olivu

Astraea

Anomia

Turritella goniatum

Calliostoma

Chione

Prototheca grata

Olivella dani

Conus - small, lined

Porcinia

Algae.

Calliostoma palmeri - det.

Dec 21 ✓

102

20 Oct '54

Soldado Bay, upper storm windows, etc, or S. of Inlet.

Pecten
Chama
Lingula.

with

- Horse hoof.

Conus -

Conus

Protacea gale

Box in Chama.

Arca -

Tridacna

Crucibulum spumosa

Crucibulum - ridge

Bubble

Murex - pale

Olivet - brown.

Pinna

Chione

Alive, in g. 2 - on boulders.

Vermet - sm, black. Iridia

Tegula - } red

Tegula. } green

Alive, in g 3, in sand inside Inlet.

Strombus gracilis.

See white blue.

Dec 22 ✓

103

21 Oct 54
22 Oct 54

Inlet at Solih Bay.

On bars at & outside Inlet.

On flats inside Lagoon, along drainways
and alongside mangroves.

Cerithium (like colic)

✓ Murret - pink

Murret - black

Comes - C. ximenes gray

Natica chemnitzii - many

Melampus - mostly small & tiny.

Prototrocha

White clam - codakia

Chione

Rayed clam. Anomalocardia

Tridacna

Thin brown clam. Megapitaria squallida

Architectonica nobilis Roeding

Pink murret

Black "

Crobs, large.

" on red.

" smaller

" minute

Rosaria

Turbo

Sirius - gracilis

" - robusta

Pecten

Argopecten

Trochus

Mytilus

Turritella

Conus

Dec 23. ✓

104

23 Oct 54

On Island off Soldado Bay. Rocky shore with cliffs rising from High tide mark. Some "shingle" in narrow coves & off N.E. corner.

Collection mostly in zone 2 & 3, some 1.

White littorine
Nerita - sm. black
Nerita - toothed.
Tegula.

Shells -

Orange pink Cone
Rock Cone
Sm. purple inside, cone.
Strombus galates
" gracilis
" granulata
Pecten - limis paw
Pecten. circularis
Turbo
Astraea
Acmaea - knobby
Arca solida
Arca -
Trinia
Crucibulum,
Thais trivittata Blainville

Star fish - 20 mm.
" " - 5 " "
" " - sm, 5 " "

Over

Jun 23 ✓

Live

Arca solida

Arcaea

Conus (lge)

Astraea - sm

Merita (Tooth)

Ascanium (lge oray & muricata)

Thais ?

sm

Cerithium - nodulosa (Kien)

Pyrene - sm.

Arca - (wedge)

Se *Conus* - nut

Se *Pyrene* - major

Thais - *triseriata* Blainville

Turbo (Callipara) *fluctuosum*

Cerithium (sm, 1 ant)

Tegula - sm?

Sm. *gaster*

Littorini - white

Pedalion

Dec 24 ✓

100

25th Oct 54

El Cochovi - Sandy beach, open to sea gulf,
several miles S. of Guaymas harbor.

Hard clean sand, some low dunes landward

Tide not minus, so no live Pteropods.

~~Reg. pteropods~~

Live -

Turritella.

Heterodonax

Donax

Notia chemnitzii.

Pelecypod

Crabs - burrows at high tide mark.

Architectonica

Tridacna

Shells - Pecten circularis.

Pecten - dup.

Heterodonax

Arca

Turritella

Flas with clam.

Codakia

Chione

Cardium

Carista

Sailors ear

Tridacna

Black murex

Pink murex

Helmet (Scot's Bonnet)

Murex - spring

Bulla

Architectonica

Cerithium

Frigh

Crep. nivalis. wh.

Crucibulum spin. + other

Polysia reclusiana

Laevicardium

Dec 25

107


Guaymas, Sonora

26 Oct. 84

Venano's - opposite Cape - bar. Sandy beach submerged into very shallow water & remains hard sand with scattered cobbles.

Alivella davis

Took -

Gorgonids - short, red.  One ad & cobbles.

Neosimnia - same dark red as Gorgonids on which found. Small to medium.

Alivella davis, adhering to Gorgonids.

Thu 26

Surayma.

27 Oct 84

At El Cochoni. South on beach (150') sandy
beach of hard packed sand. narrow storm belt.
low dunes and/or narrow lagoons beyond dunes.

✓ Live: Turritella

Agarion

Tricola

Crepidula (white, flat,

Crepidula, hooked, inv.

Donax

Heterodonax

Bl. murex

Shells only:

Turritella gon.

Heterodonax

Donax

Strombus gracilis

Deep pecten

Pecten (circulans)

Cochlea

Chione - ruffed

Small spring murex, long neck.

Pitar - thorny

Corvina

Black murex

Isoricardium

Archilestonia

Conus

Globid?

Crucibulum apertum

Crucibulum

Cerithium

Jingle - small

Bulla - large

Murex - flanged.

Other one. Gastropod

Sun 27 ✓

109

Swagman.

28 October '54

Baccharis, from Inlet bridge, west on rocks & boulders of coast to point. Little sand, some gravel. Solid rock in areas.

Flora:

Cornus
Astragalus, sm.
Acanthina, lvs, orange.
Veronica - toothed
Erica, med, wedge shaped.
Cercaria - lvs, knobby
Turbo - plentiful
Corymbus - 2
Pyrene.

Crabs - 2 sp.

5 rayed stars
20 rayed stars
1 small knobby (5), brown.

Shells

Architectonica
Pecten circ.
" dup.
Favosites elata
Alia opicata (dark)
Rosaria
Chama - fringed
4" Chama, pink margin
Chama, large, purple rimmed
Pterodonta
Turbellaria
Strombus gracilis
Crepidula (wood)
" - ruga

Cornus sp.
Juniper
Phacelia

Jul 28

112

Guaymas

29 Oct. 54

Inlet S of Black Point, some half mi. west
of Miramar. Cobbles + solid rock, some sand, much
gravel, in inlet facing SW.

Alive -

Conus - lg, striped.

Conus, small, ..

Strombus galeatus - im. galeatus Swanson

Hermit, loathed

Tegula, large

Acanthina

Murex, erythronotus

Turbo - large, clear spec.

Cerithium, large, knob.

Pyrene

Arca solida

Chama? im.

Ocenebra, knobby.

Crab - ~~Menidia~~
Hermit

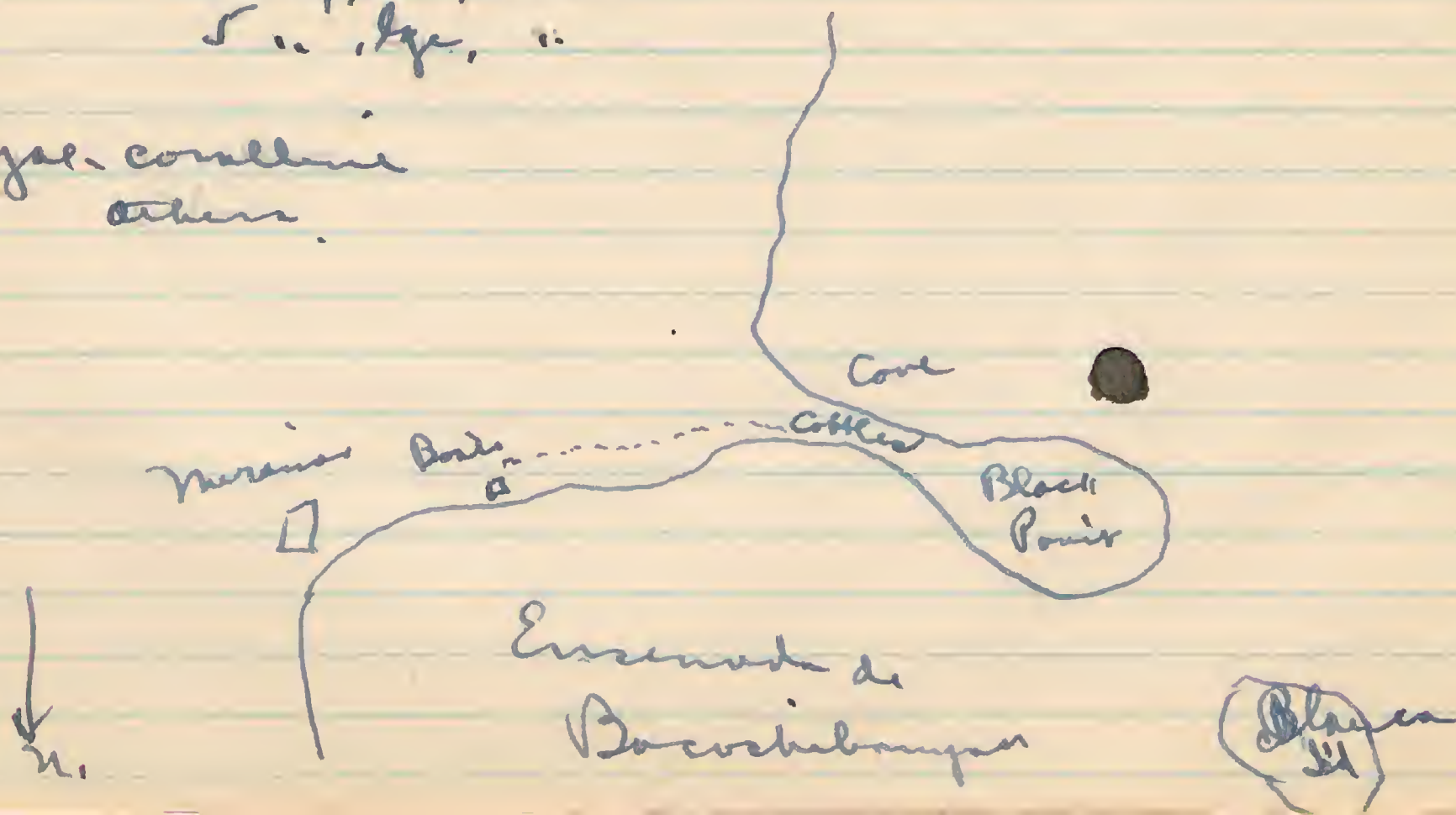
A/a [E. Adaptychus] cornuta (Stimpson)

Star Fish 20 ray

5 ray, pm, smooth

5 .. lg, ..

Algae - coralline
others.



Dec 29 ✓

Guaymas

31 Oct 54

at Batuecas, S. of Mazatlán Guaymas but
n. of Camarero.

Silt, mud, sand, gravel & some boulders.
Sewage at places. Cobbles plentiful.

Calliostoma
Tegula (sm, checked, red bed)
Cerith. calif.

Alveol - Rossmore (eye yellow lip)

Detraa Corteziana

Crucibulum spinosum

Chione?

Pyrene - eye

Pyrene - sm.

Turbo.

Crepidula onyx?

Acanthina

Lophol. lumpy

Cerithium knobly

Tonna

Cardium

Area on above.

Truncatella

Thais - flat end.

Solomonella

Imbecilis

Slater pencil sea urchins

Phore abrup

Shells-

Turridae

Eye Peck

cone

Top shell (Calliostoma)

Nuxes -

Strombus gracilis

Enclonema magallanica Swainson "Pearl eye"

Tu 30 ✓

6-7 Dec '54

Nemours

On sand bars, some cobbles, at Inlet at
Nemours (Carlos Escalante). At low tide.
Squidles amongst cobbles.

Invertebrates

Olive - Notica - grey. (Cham.?)

Black murex

Cover - murex?

Cover - small, light.

Olive - brown

Olive - spec.?

Olivella duma

Solenastrea

Cardium

Trochus

Arca

Squidles fusca?

Chione

Crepidula (murex?)

Shells

Kuribay almondo

Strombus gracilis

Protothaca gata

Tringa

Amor

Coffee bean - Tringa

Jackknife (rosaceum?)

Pecten

Alchus

Calliostoma

Dosima

Chione

Calliostoma

Coralline - ss.

Fungus shell - valve

Cruc. Spinosus

Solenastrea pallida

Polinice ubi

Dec 31 A ✓

113

7 Dec 54

Batuecas

A - Long sand spit off S. point toward Enpalme. Pure sand & gravel. Rather barren.

B - Among cobbles on sand & gravel, some silt in spots, opp. old smelter, west of Cabaret.

Also rocky shore from Sand reef toward Enpalme by & Porter house.

A - Squirt

Bl. clawed crab

Pennae - species?

Octopus

Bl. murex

Tellina?

Drill, turned up end. Euplaxum muriciformis. BROD

Solenaster pallida

Trinitella gonodonta

Chiton

4 ~~shelled~~ ^{shelled} clam. Anomalocardia subrugosa - Wood.

Protothaca

Cruculum spumum - one lying egg in shell valve.

C. - ridged -

Alone - sm.

Arca - sm.

Cardium - sm.

Large Arca

Jack knife clam

Olivella dama

Natica (grey) Chemnitzii?

Nossam

Arca large

Hemir Crab (2 s.)

Clitellaria clam, 1 1/2"

Cardium procum

✓
 Ju 31 B.

B

Batuecas, west.

Collected:

Turritella

Acornthina. lge, orange.

Top shell, operculum, cream sharp edge.

Crucibulum, redged

C. spinosum

Dactylo - H. limosa

Alutia

Natica, green

Tegula, green operculum

Tegula, brown

Nassarius, sm.

N. , lge yellow

Pyrene?

Ker. ~~bigona~~, thin

Cardium

Anomia?

Drill, tip up near Euplexaura muriciformis

Fusinus? 2"

Cerithium, knobby

Chione shell

Vermet & hermits

Crabs, bl. claw


" tiny

Top, brown, not operculum. Rd edge.

Hydrobia limpet

Turbo

Crucibulum nivalis?

Long area? 

Pecten

Rd. murex

Pecten shell.

Eel

Comp. arcata - orange

" " black.

Shrimp, pistol

Fish

Cardium affinis californicum

8 Dec 57

Soldado Bay, or Tule outside bars, and
inside flats -
Pure sand, occ. beach cobbles.

Live Shells - P. macmurtrei (4 specimens)

✓ Cones

Asteria - mangrove.

✓ Chione, heavy.

Arca

Large clam Anomalocardia subrugosa

✓ Natica, grey

Argopecten

Merlangus

Polymesoda - sand

✓ " white P. ruber

✓ Alveola dunn

Alosina shells, sm.

Alosina, large.

✓ Oliva - brown.

✓ O. spicata

Turbo - fat

T., slim:

Salmodontes

Crab.

W Bay Star

Algae

E.

Cardium & all above noted ✓

Squilla

Neosquilla, Red

Bubble - lge brown

Strombus gracilis

S., knobby, shell only

Bl. Murex shell only.

Urosalpinx, sm.

Dentalium

Gorgonids, red.

Dec 32 v

Fori

Stomach - eye white, long, fine

Pyrene

Donor

Solenaster

Acanthina - orange

Tridacna - ft.

Gordium

Paricardin elston

Oniscus - reg.

Conus - nebulosus?

Notica - grey

Potamides - banded

P. reclusianus?

Crepidula onyx?

C. murex

Oniscus brown

O. speciosus

Prick murex

Black murex

Legula - 2 species

Lygia clava

Notosquilla - sm.

Alivella domus

Mosca - white

Bryozoa

Snail dollar O

no Ray star

Hermit Crab

Red gorgonian

Crown

Star fish, 3 arms

Shrimp

Fish

Shells

Cerithium, large

Oyster

Thin Tridacna

Large Tridacna

Crab - Knobby corner

" - Tiny

2 or 3 small white clams

} 4 other
clams

Dec 33 ✓

117

9 Dec 54

San Carlos Bay

at upper end (neck) on wide sand flat, rather clean, at low tide. Silt only on west side. Sand, rather coarse, underlain at 4" 6" by clay-colored layer of some depth. Clams stained, except shallow line. Bar exposed at minus tide. No surf at all.

Collected: Anomolocardia subregosa.

Hot Fossil? Megastipitoria Squillida sby

Olivella spicata

Olivella dani

Polinices - white

P. banded.

Natica - grey

Chione

{ Chione filled shells for upper marshy end Soldado }
{ Arca, large, " " " " " }

Prasidictia

Murex. pink. Clean

Murex black Clean

One Oliva more @ than Soldado.

Cerithium on mud flats, Soldado

" knobby.

Ligula

Pistol Shrimp.

Astraea cortiziana

Turnitella

Crepidula onyx on shore

Drill found up west. - Eupatorium minusiformis

Crab

Very smooth Ligula, red inside

and same as A & E.

Donor

Cerithium stercus - muscarum

Algae

Spring 80

A

4

E

ROM

118
Tue 34

30 Oct '55

San Carlos Bay

Sand bar to silt to cobbles, working
around outer edge - Low tide - 0.7. 1/3 bar exposed.

Took: *Murex erythrostomus*

Olivia speciosa

Turritella gonostoma

Laevicardium elatum

Melampus

Cardium

Polinices reclusianus

Vermet

Pyrene

Livina

Spindle

Cuculobulum

(ridged)

Crepidula onyx

C.

(hooked)

Fissurella

Natica chemnitzii

Conus

Conus

Eupleurum

Tegula rugosa

Margarita?

Turbo

Chione sp.

Gu 35

119

31 Oct 1955

At Venano's Place, Guaymas

Barnacles on sea turtles.

Gu 36

120

31 Oct '55

San Carlos Bay.

Same site as Gu 34,

Same as Gu 34, plus:

Pecten

Black murex

Acanthina

Tegula

(Red mouth)

Conus - large, white inside

" - purple inside

Pinna? Atrina

Favosardus

Jul 37

121

11-2-JJ

San Carlos Bay.

Same site as Jul 34 & 36, but worked rocky beach on west, further towards inlet. Red rock lava, plus loose boulders, much algae, sponge & green coral.

Found in addition to Jul 34 & 36 -

Crab, foliata
Slate pencil sea urchins
Purple spined " "

Hermit 3'

(yellow)

" 3'

small, black

on to
under
rocks.

Cowrie, large 2" brown

" small 1 1/4"

Arca solida

Ones on sand bar at dusk, roving.

Acanthina muricata

Pyrene major

Large (1 1/2") Crepidula

Allopus, 2', escaped:

Crayfish 1/2 grown, "

Purple, silver dotted flat worms, about 7 pieces

Rock oysters (chance - 1

Jun 38

122

Heinecke's

Jun 39

123

11-¹²~~13~~-55

Soldado Bay -

Near Inlet, esp. East side.
Sand - gravel bars, some silt.

Live

Notica chemnitzii
Oliva - brown
Agaronia testacea
Regula - red
Babble shell - large
Dorsinia
Cardium procerum
Melongena guttata
Polinices ruber ruber
Anomalocardia
Strombus gracilior
Conus - spotted.

Shells, assorted, esp.

Protolucina galea
Trinia - 2 species
Pinnus.

In 40

124

11-13-55

San Carlos Bay

Collected as previously but got around to cove just inside Inlet on west side at "Causeway". Walked across tidal flats, finding many Pink murex & Secretella? Then along old road.

Live - "C" mean at cove - others on flats "7"

- Pink murex C 7
- Cones - C.
- Oliva spicata 7
- Slate pencil urchins C
- Yellow star fish C
- Spring dark " " C
- Cones C
- Solenostoma pallida 7
- Polinices bifurcata C. Emptying fr. gravel.
- Chione C-7
- Polinices reclusianus 7
- Natica chemnitzii 7
- Turritella 7
- Acanthinus muricata C
- Chama C
- Crucibulum - ridged (imbrecata) 7 on Turritella.
- Ostrea C
- Proto. ? C
- Keyhole limpets C
- Euplexaura C
- Cerithium C
- Cowie C
- Brown clams 7 (C. 2 large)
- Perma C
- Trip oysters 7

- Shells - Rough white clam 2" x 4" C
- Round white clams, flat C
- Cardita calip. affinis C

Gorgonian
Neosumma

See 41

11-14-55

Bacochibampo - on bars at Inlet.
Sand & cobbles alternate beds.

Conus - xanensis

Conus - regularis?

Olivia - brown

Polinices - red

Olivia plicata

Spindle

11-16-55

Agmonia

Natica cherundzi

Cardium procum.

Beach at Venau's - morning gleanings

Strombus gracilis

Strombus - knobby

Bubble - large

Deep pecten

Proto. grata

Red clam, tiny.

Dosinia, sm.

Trinia

P. pustulata

Mytilus

Jackknife clam

Architectura

Conus

See 43 -

Mar 42

126

11-15-55

Soldada Bay - A Inlet bars S of inlet.
B - boulders S of above -

A - Clean sand; occ. patches of cobbles.

Cer. st. muricatum
Conus ximenes
Oliva - brown
D. plicata
Nassarius
Acanthinus muricata
Turritella
Keyhole sand dollars - Mellitus
Agaronia

B - On and under rocks.

Asterias
Turbo
Tegula rugosa.
Pipera - small
Nerita - sm. bl.
Anomia

Corb - foliata
12 my stars.

Loose shells from windrift

Bubble
Cer. - large.
Pecten
Protolusca grata

Dec 13

127

11-16-55

Bacochibampo Bay, South side, rocks & bed rock. From end of road to point.

Live - *Legula rugosa*.

Black pyrene

Cone - red, black stripes

Ptarmica - rare, in crevice at 32. Growing

Trivium

Merita - touched.

Thais biserialis

Crucibulum - ridged, flat. 83

Cypraea - brown

Thais - knobby.

Astraea

Small gastropods, lined mouth.

So. Horse mussel, bearded.

So. *Cer.* - large.

Turbo.

Crab, foliated

16 Ray stars.

Slate pencil urchin.

Green star.

sp. 41 { 50

Crep. onyx

50

Transparent pink clam, living

50

wh. globular clam, 1/4"

Jan 44

128

11. 24 - 55'

San Carlos Bay.

A - Turritella Flats - sand, gravel & a bit of silt.
upper bay, NW.

A Turritella in abundance, in groups, partly buried
with mud - on shore.

Brown sm. clams

Ridged clam like Proto.

Conus - red lined.

Olivella spicata

B - Cove west near causeway. Some silt on gravel,
some loose boulders, some bed rock (lava)

Solenostoma

Carditameria

Prot. oyster - clams

Banded mussel - bifasciata

Proto - grola

Olivella dama

Crep. onyx

Wh. clam, shaped like Geoduc

Conus - red lined

Thais biserialis

Tequena lutea.

C - Pool in Cobble, silted

Wh. clam



July 45

129
11-26-55

Quagmire - Euphorbia -
West of north end of causeway, on mud flats
& shore cobbles.

Cruc. spin.

" radialis?

Euphorbia

Legum. baugosa?

Asterias med.

A. Corteziana

Conus

Don

Cer. caesa - muscum

Proto. grata

50. Cockle - pecten
Variegated clam

Is 46

130

11-27-55

Soldado Bay - Inlet & across, usual
bar.

Antes sand bar

Olive speckle

" - brown

~~Pinna~~ Cardium procerum

Br. brown clam

Conus - speckled

Turritella

Wh. mussel - ribs

Sand crabs.

Ageronia

See below

Across Inlet, bar washing

lber - large white

Pol. reclusiana

Aplys

Scotch bonnet

Pinna

Anomalocardia

Dorsina

C. P. procerum rostrum - jack knife

Antes sand bar

Crab

Turilla

Dec 47

131

11-28-55

San Carlos Bay -

A. Are unusually low tide, at dusk, & many animals popping to surface; esp. banded polinices & pink murex.

B. Open rocky coast near "concealway"

C. Pink murex

Spindle - one very large

" - small.

Oliva speciosa

Melampus - 1

Conus - purple inside

" - stripes

Patina

Prothaca

Brown clam

D. Almina
Nerita (toothed)
Conus

Rock crabs.

Jul 48

1324

11-29-55

El Cochovi -

below Empalme to resort - north
along sand beach at low tide, back by
dusk.

50

Pitar lupanaren

Olive - black

~~Strombus~~ gracilis

Black murex

Pink murex

sc

Murex sp

Spotted gastropod - rare

49
48

133

11-30-55

Soldado Beach; on bars at Inlet,
Sand, clean.
" & cobbles.

Prick-mussel
Thin brown clam
Card. procerum
Olive - black
" - spicula
Comus - spades
Comus - large brown
Pol. reclusiana
" sub-
" bipreciosa
" ?
Cerithium
Pitar lupensis
Turritella
Thin sand dollar
Arca " "
Agaronia
Long brown clam
Tridacna
Arca grandis

SO. Proto. quata
" Tridacna
" Dracma
" Cinc. spina

ju 50

134

1-4-56
1-2-56
1-3-56

Bacochubungo -

A. At Inlet to lagoon at Venanos, in rocks N. side

B. On sand bars of lagoon.

A.

Black Murex

Keyhole limpets & nudos

On white gorgonid - D - small.

Thin *brevitoma* & *Gemma*.

Atrina - rough.

Pedulin

SO { *Strombus gracilis*

Borer clams

Chama

Shrimp.

Cowrie - Sm, flat.

Crep. on above.

Margarita.

SO *Strombus* - knobby.

Cleaned

B.

Melaepecta - 2 large.

Wh clam O - 2-3"

Proto like " but not P.

C. albanodorsum

Wh. many live Sea Hares.

Forficardium elatum.

SO

Ingulus

Wh. clam above.

Jul 51

135

1-5-56

Soldado Bay.

A. on bars at mouth of Inlet

B. " " inside (East) of mouth -
opposite camp ground.

Both clean sand to some gravel - a little silt on B.

A. Olive - brown

" - *O. spicata*

Ear shell -

Area

50. - Pecten - orange.

Cer. or *Knipfostrin*?

Papa *nasarius*

50 *Tridacna* - sm.

B. *Agarionia*

Pericardium elatum - sm. & large.

Ear shells - esp. in shallow tide pool.

Rough cardium

Bulla -

Notia chem.

Conus - *ximenes*

Cardium procerum

Melampus - sm.

Chione -

Pol. suber

Brown thin shiny clam.

Area

Atrina - rough

50 *Ingelus*

Many baby clams, ass't's.

mostly cleaned
gammie

Gu 52

136

1-6+7-56

San Carlos Bay

On sand & silt flats, upper end bay
And more particularly at Inlet Cove
as before -

Pink murex

Cone - eye - orange

" - speckled

" - small orange re.

50 Lion paw pattern.

Proto. & similar

Brown clam.

50 Neroduct like

50 Globular, white, $\frac{1}{2}$ " - $\frac{3}{4}$ "

Large chione? - heavy like Washington clam

Knobby cerith, large.

Sm. cer. or Kneseportia

Oliva speciosa

Agarion

Thin - flat, yellow inside

" - orange, biseriate

50 Knobby strumbus

Unica chem.

Pol. 2 ships

50 Mytilus.

50 Cardium procurrens - must red inside

50 Chama - large, wh. inside

Ostrea L on sm. rock.

1-8-52

Soldado Bay -

A. Bars at outside of Inlet.

B. " inside Inlet

A+B Mostly sm. gravel & clean sand.

A. Big olive

Conus

Cer.?

- pallida?

Pink murex -

B. Br. clam

Wh @ "

Laevicardium

Big pelec

Pink murex

Agarionia

~~Cardium~~ procer

50. Sm. brown figured clam - 5/8" diam.

Ga 54

138

1-9-56

San Carlos Bay -

A - upper flats, boulders & silt on sand.
Exposed at L.T.

B - Cove - Covered to 3' at low tide.

A. Pink murex

wh. moon.

Turritella

Ospicula

Conus -

Idvella dama.

Chama

Drill - Euphem

Grep. onyx on Tur.

Spindles - sm.

B. Pink Murex

SD. Long many ridged Cardium

Cone - large.

" - med, lined.

SD Flat clam, pink edge

SD Prot. type, eye

Conus, sm. orange.

Arca? on bottom rocks.

SD. Circulus 1" clam.

Cer. - eye, 1cm. high.

Pol. & slugs

Isu 55

1-10-56

San Carlos Bay -

A - Outer coast, cove west of "Causeway"
B - same as site B - Inner cove.

A - Conus - black stripe on orange.

Cornu - sm., flat
" - brown bottom.

Trinia -

Pyrene major
" minor

Astraea

Thais - yellow mouth

T. 2 rows.

Acmaea patula parva

Littorina - gray.

SD. Cer.

SD area -

B. Pink mussel

Pol. - brown, yellow stripe

Conus - mottled.

" - speckled

Jan 56

140

4-8-56

Quynhuan - 4. mud flats (& seawall) of lagoon
& rocks on n edge.

13 - sand flats at entrance to lagoon -
Brick or Venetian - Brechibampa

Jul 5-7 + 58

141

4-9-58

4-10-58

Soldado Bay. 4 - sand bars outside lagoon.
B - bars inside entrance.

Shells only - Anomia
Cone - striped
" brown
" regular
Cheone
Turbo
Pink mussel
Pecten
Bubble - large
P. type brown
Copper bead
Anomia (jungle)
Pecten orange
Crep. adunca
Crep. nivalis?
Natica - white
" - grey beaded
Conus nux
Anachis

Arca
Terebratulina
Anomalocardia
Dorsina
Turritella
Stomatopoda
Erycin
Sm. vol. clam, elongate
" " " " O
Cupressus - ridge
" " " " - species
Pecten - dry valve, flat top
Oyster
Red (littorina)
Bulla
Cer. white
Protothaca
Crep. formosa
Arca - 2 sp.

Live - Pink mussel
Black " "
Terebratulina eldredgei
Cer. albanotusum
Cardium
Oliva
Aporrhais
Bones in other shells
Cassia
Solenostoma pallida

Dorsina
Anomalocardia
Sm. ridged, flat, clam
Cheone
Bulla
Oliva speciosa
Purpura
Orange knobby
Anachis
Donax (red)

Hermis crabs. 2 species

June 5 '9

142

4-11-57

San Carlos Bay - N. end. Cobbles on sand, blue
below at varying depths

Shells only -

Calliostoma

Turbo - Callispongia

Chione - fol

Oyster

Solenostoma pallida - a parasite with hermit crabs.

Chione - ch

Pisina type

Surrellia

Live - Tegula auriculata
Tegula saxosa
Turbo - on rocks - shallow water

Keyhole - " "

Surrellia - sand.

Oyster - on rocks.

Tegula - red throat - under rocks

Comus regularis - under edges of rocks, some half buried: But in
deeper water than Turbo, generally. 30 under one rock 12" x 24"

Chione - shallow

Tip nose drill - shallow water. In bunches. Eupatorium.

Pisina

Pink mussel - spread on sand, 2' water

Red mussel on spindle - in bunches on & under rocks, 2' water. Fusus

Anachis

Ger. ?

Solenostoma pallida

Mie Geo

143

4-12-57

San Carlos Bay - on outer coast at Cove near
bay entrance, on lava rocks and beneath same.
At low tide. Semi protected by capes N. & S.

Live Pyrene
Live Thais patulapana
Live Littorina
Live Pyrene
Live Nerita
Thais

} Most specimens empty
shells except for Nerita.

Large no very star fish

Jan 61

4-12-87

San Carlos Bay - Cove inside entrance - sand
with cobbles & some silt.

Live - Pink murex

Large ridged clam - 6" x 4"

Clam - striped, dark.

Olivella

Thais triseriata

T. biserialis

H. pallida


Merita

Turbo

Marquitta

Cer. varium

Flav.

clam - on bottom of rock 

area - solida.

Astraea - sm. white

Shell only - Brown cowrie

Olivella

Pyrene

Clam - striped, reddish.

" - Small - var. color.

Cowrie - med. brown.

Porto,

Strombus gusellii

Perla - green

Styris morn.

Solenostoma?



Astraea - sm. wh.

Large ~~rock~~ star.

June 17

145

June 19. 37

Soldado Bay - across Inlet, up main
lagoon to north, // to beach.
Sailed, some night.

Live

- Black murex
Pink murex
Knobby cone?
Solens - yellow
Olivella - brown
Olivella - brown
- species
Clam - wh., like young Schizothaera
Dorvillea
Green clam (Purpur type)
Thin white clam. (Bellini?)

Rose periwinkle
Natica - grey
Bulla gouldiana
This Dorvillea
Favosites alata
Murex

Shells

Lurbo.
Shells of about "live"
Cone, green
Cone (all striped)
Numerous & varied thin clams
Saxidomus

Mar '03

146
94-23-57
(over)

20
4-14-11

San Carlos Bay

As Outer edge of sand bank with low
level.

B. 200 ft. wide. 2 ft. deep. 1 ft. high.

There points present

from the sand bank

to the edge of the sand bank

Chitons

B. 200 ft. wide

From the edge of the sand bank to the edge of the sand bank

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

Chitons - 100 ft. wide

100 ft. wide

See map

Gu. 64

4-22-57 147

4-21-57

Beach - along coast - washed
up on tide flat at low water base, under
boulders in crevices.

Shells on

Mytilus - 1/2 ly. banded high in crevices

2 many small " - in crevices

1 small?

5 small ones?

Check!!

Com. mud

Haminae

Rhina or pseudochama

Turbo

Gu. 63

4-23-57

(San Carlos Cove & Outer Beach)

Five - Com. - striped
Mytilus - 1/2 ly. banded in crevices outer Cove -

Haminae

Kyhole limpets

Anacis

Cerithium

Brown cowrie - com

Ostrea on rocks, S. side Cove.

Th. bicolor

Th. tricolor

Brown cow

Striped cow

Chiton

Tham. satula parva

Porrea

Starfish

Algae

El Cochon Du 65

148

On sandy flat beach n. of Chamorro Beach,
El Cochon, South of Empalme.

4-24-57

(Note - hundreds of Brocero's registering at Empalme.)

Shells only -

Architectona

Bz. murex

Bulla gouldiana

Sm. Tivela

Donax

Heterodonax

Schmuckia gracilis

Thin white clam, hinge like Mya.

Calyptra

Arctulites - ridged

" spinosa

Cardium

Chione - fringed

Pitar

- valves only

Luridella - 2 species?

pallida

Borax.

Jun 66

149

North of Chamacos Beach, El Cochori.
4-26-57
Flat, hard, clean sand -

Beach shells -

Strombus gracilis

Laevicardium elatum

Dorsina - large

Saxidomus sp.

Heterodonta

Monodonta

Chione - fringed

Arca - 2 sp.

Anomia

Pecten -

Thick pecten, flat turkey wing tip

Tridacna

Crucibulum spumosa

" - ridged

Architectonica

Trochus.

Pitar - spiny

Tridacna.

Murex albus

Purple umbone clam.

Dark white clam.

Winged oyster

Corbicula.

Crepidula only

" *minuta*

Astraea

Bulla gouldiana

Clam - white, bent nose.

Glycymeris

Top shell

Turbo - like Top shell.

Flat top clam - ?

Mar 67

150

- 4-30-57

Early low tide. Out on beach at dawn.

Soldado Bay - Inter sandy bars, both sides.
0500 - 0800.

Alone
Olive
Clivella
- pallida
Bulla gouldiana
Turritella
Purp. murex
Shiny brown clams
Chione
Conus regularis
Protothaca
Donax
Polinices ruber

Shell - As above, plus.

Turbo
Astron americana?
Cardium
Proto.
Lorium
Circ. spumosa
Low yellow clams
Cardium
Jugosa
Pellagora
Bubble algae - 4" diam.

July 68

5-1-57

151

Rapoon, Bacrochibamp - in silty sand to mud.

Chione fructifera - lacy chione.

Murex - black.

Isu 69

Soldado Bay - ^H Bars at Inlet - Sandy. 5-1-57
B - Lagoon

Five -

A

Conus regularis
Bulla gouldiana
Agaronia
Heterodonat

Sea Mouse - alive

Slim bent nose clam.

Alive.
Area

B - Conus - brown, med. size

Shells only -

Architectona

Conus reg.

Protolusna

Pecten

Purpura - (Trinia) ~ 1/2

Conc. (redg)

" spum

Cismotype.

Clione - small

Trinitella

Top shell

Dec 70

153

5-3-57

At Soldado - Bar at Fort

Producers in front of Clinic. 61 women
4 white women. Crossed by the
Plus 3 Egan shells, also
Also one fringed Chiton.

Long N. Lagoon produces Chiton,
also 3 live Balanus.

Dec 71

Sun. Jan'y 11-58.

Soldado Bay

Collected on South side Inlet, from Camp around point.

Dry shells on extreme N. end Sand point.

Live, on inside bay on sand beach at water's edge -

A

Scotch Bonnet

Oliva spicata.

B

Dead shells -

Nerita - yellow, spotted

Pecten - several species

Cruciatulum - " "

Porolith - *gryllus* -

Alvania

Trinia - 2 species

Polinices - brown, large

Half shell

Starfish shells

Flat rock " - *unio*?

1-13-56

Jan 7v.

Donated by
old clothesGuaymas -
in gratitude for

Iris - 2 species lined

x some good.

Iris 2 or 3 " , spotted.

x " "

Cones - purple

" - lined

Murex - pink

x " "

Cypraea -

x " "

Cones - small, pink.

x " "

Pyrene

Natica - white

New specimen, long -

Some other small.

Jul 73

1-15-58

Saldado

At Inlet - on clean sand bars; across Inlet on sand, some of it shallow, over silt-clay & gravel. At mouth of North lagoon in water to one foot deep; and across (E) to parking place on south side Inlet.

Alive - Scotch bonnet

Pink murex

Melampus - all cruising in shallow water, on bottom.

Pink clam, 1" x 1/2"

Eusis

Razor clam

Anomia - on snag

Cruc. spin. " "

Clam - bronze, marbled

White nautilus

Grey " "

Agarionia

Turbo

Strombus, knobby

Olive, large br.

" , spicata

Conus - lined

Dead - Architectonina

Razor clams "

Bronze "

Strand, knobby

Cruc. spin,

" adunca.

Alive

Conus

Prototrochus

Trinia

Turritella

Chama

Arca

Small white O

" " O

Jan 74

1-16-58

Soldota

Same as Jan 73 -

got a live specimen of Arca.

No Melanzena except juveniles - (a darker day.)

Jan 75 a - Murex lecanus, Dall? Taken in net by fishermen at Bridge in Causeway on Hwy, between Empalme & Guaymas. Got live specimen

Jan 75 - ~~Sold~~ El Cochon, n. on shore sandy beach to near Inlet to Lagoon (w. of Empalme).

Beach Shells

Pecten deep.

" flat

Paniscus elatus

Strombus gracilis

Crep. adunca.

Murex bicolor

Crep. vincta

Astrus

Architecton

Jingles

Thuristella

White Moon

Pol. reclusia

Arca. spumosa

" - rugosa

Worm tube

Agarion

Alia spicula

Conus - black

Angel wing

Black Murex

Sm. Spindle

Brown Top shell

Jan "

Heterodont

Ronnet

Calyptra

Arch - small

Fined red clam.

Murex elenensis

Knobby margarita?

Dialos Esi

Pink rimmed clam

Yellow "

Star Injuncta

Fringed clam

Ensis

Pink clam

Sm. @ clam

Cerith. albobucca

Bubble shell - lge

Grey natica

Jan 76

158

1-21-58

El Cochovi, S.

Clean sandy beach, 50' \pm between mean low tide & high tide.

Same generally as Jan 75, north of Pavilion

Alone - Agaronia, feeding on Heterodonax & Alona.
 boring very regular \bigcirc hole.
 Polynices reclusianus - also feeding on Wedgies
 Tridacna -
 Idelerodon
 Alona


Jan 77

El Cochovi, S.

El Cochovi, N.

South from Pavilion along beach, past lagoon on east of dunes, to where beach becomes 200 yd wide spit. Here storms have washed across spit into Empalme lagoon, leaving many shells.

Dead - Scotch bonnet
 Pink murex
 Lunaticella
 Murex cones
 Fringed clam
 Strombus griseus
 Polinices reclusianus
 Br. Bubble
 Rosy cockle
 Yellow "
 Pholads.

New species -
 brown clam 

Other, same as Jan 75 + 76

Jul 78

1-26-58

Soldado.

On spit S. of Inlet, not a low tide;
and in rocks in splash zone.

Usual dry shells.
Some P. holads, etc.

Jul 79.

1-29-58

Soldado.

A At N. end of big lagoon - shell heaps by natives.
Area
Fringed clam

B On sandy beach, from Inlet N. to small lake
(lagoon cut off).

Dead Strombus
Olive
Cone
Sand dollar

Speckled clam - 4"-6"
Big Morina
Parts of broken gastropods -
Sea pen - Hacks

Alive - From boat at Inlet.
Scotch bonnet
Olive - brown
Juretille & limpet
Area
Strombus granulosus

Jul 80

160

1-30-58

El Cochon - n.

at low tide (2:00 p.m.) north from Pavilion
to near island at end of spit. Fine
collecting at low tide mark.

On sand flats, ocean side (outer harbor)
got live -

Scotch bonnet

Fringed clam (*Chione fringed*) fine fringes

Olivia spicata

Thorny clam - few species

Agarion

Beach shells, ocean side.

Black mussel

Periwinkle

Thorny

Bubble shell

Top shell

Light pink periwinkle

Deep pink

Brown cone 2"

Striped " 1 1/2"

Slit " 3/4"

Big dark cone (5")

Strawberry periwinkle

Monina - light wh. @

Poly. rocky

Small ray clam - 1 valve

Leda - large

Dumetella

Grep.

Pink jackknives - sm.

Pink clam

Sm. spindle.

Speckled clam 4"

Arca - sm.

Big Leda (small) 1 valve.

Best collecting yet!

Crab - "Sally lightfoot"
Hermit in potence

Is 81

1-31-58

El Cochon n.

Same as Is 80, but further north.

Same specimens -

also large cones.

Lge. beds?

many lge. bryozoa

Is 82

2-1-58

El Cochon n.
Is Island

Collected to and at Island -

Causeway now connects spit to Island - 8 in
light, windows of shells. Reminds of Sanibel Is., Florida.Five *Olivaria spicata*?*Scutella bannet*.*Cruz. Cruz*

Iu 83

162

7-2-58

El Cochón - North
Z Island.

Same area as Iu 82, but around island
also, in Eupalme lagoon, on beaches.

Alive - *Oliva spicata*?
Scotch bonnet
Crepidula onyx
" *niraca*
Aslira.

Spring clam

Round 2" thin rosy inside
yellow out. Clam.
Agaricus

Went -

Pecten, several species -
Jingles
Flat oyster shell.
Jurella
Pol. reclus.
Strombus grac.
Proto. gals.
Pink clam (Tellina?)
Jack knife
Crab

Scotch bonnet.
Knobby gastrop.
Cup & saucer (spinosum)
Murex - spring.
" - flat -

7/3/58

Iu 84

Same as Iu 82 & 83

N. El Cochón & Island

but more on boulders along shore

New species -
Cerithid?
Mussorum

Jan 85-86

2-11-58 & 2-12-58 PM El Cochon - N.

Playa de los dolores to Isla Morritos

D. Entire half sandy beach, 4 miles northward.

A N. of Island has many sm. shells with hermit crabs.

B S. of " along tide marks, preponderance of Pecten
Clams, Strombus, Jingles, etc.

C. Sand bar at pt S. of Playa, 1/4 mi from Island,

Oliva spicata


Melampus - alive

C. Scarlet Bonnet "

Fringed clam "

Thorny clam (Pils) "

B At high tide, following "blow" fr N.

Sm. white clam  1"

Sm. cream "  1/2"

Anomia (thin jingles)

Just of am. sea biscuits

D. Along beach -

Lunella

Crep. - spawning.

Strombus grac.

Pink mussel

A - Sm. spindle

Drill

Murex retia - spiny.

" 3 flanged

Pecten

Ostrea med. & corteg. (alive)

Playa - -

Dec 87

164

2-13-58

P.M.

San Carlos -

A - Cove near Inlet, to west from it.

B - Cove " " on ocean side

A - Pink murex - alive

Strombus - knobby

Above feeding on heavy shelled lined clams & Proto.

lined clams

Proto.

Note - Got 11 pink murex fairly clean, in spite of
shell collectors preceding - at museum.

B - Purple Linnet - *Purpura patulapansu*
littorine

Head
Cowie
Strombus galeatus
Cistner

July 88

2-14-58. Early P. M. Low tide. El Cacho n.

Along beach north from pavilion - not heavily covered.

But live specimens esp. on wide clean sandy bar, hard packed, at point. (S. end. of Playa Holcom)

These include

Olivos spicata? Uniform size of largest, 2" - 2 1/2"
Scotch barnacles

#

Melospiza - a record; large & fine, no injury
or breaks in operculum.

Note gave it successive (at hr interval) bairns.
(from cold) of 15 & 20 minutes each before
could break animal loose. Pulled by hand while
still hot. Came complete.

Pink murex came in half that time.

Olivos giving trouble - stomach remains.
Over cooked?

Beach shells -

Black Murex

Lge wh. cone

Fined cones

Thin round, rosy inside, clam.

Terrestrial elatn valve

Dracina - v. Sp.

Small Ecn

Planat

Heterostoma

Pink Tellinid?

Bubble - lge dent.

Angels wing

Tridacna

Fined narrow clam, sm. Some rayed.

Sm. creamy clam 0 1/2"

Test of sea biscuit, sm.

Rosy cardium

Section

Dec 89

166

2-17-58 P. M. early.

El Cocker nos.

Tide only moderately low. Half of Point Bar exposed, & still wet.

North fr. Pavilion to Isla, but not on Isla.
On Playa Holeros, Sand Point bar, & fr there
to Pavilion.

South fr. Pavilion over 1 mile, mostly at
high tide mark.

New Specimens - both fr. Playa Holeros.

Cerith - 5" long.

Sm fragile white clam.

Live - Hermit crabs in Pink murex

Live - Barnacles.

Olive

Scarlet bonnet -

Spring clam.

Dead - as usual -

Bubble shells, large, plentiful

Pink murex

Black "

Spring " - retic.

Rock clams - cockles

Orange "

Yellow " - card.

Pecans

Zurubella

Strombus groe.

Pol. rectus.

Tricer

Architect

Just knife clam - 2 genus.

Spring clams - esp. small

Cones - sm lined

Fringed clam.

Jingles - thin - esp. near Isla

Sm red cedar clams - 1 1/2"

Pholads - 2

Donax

Heterodonta

Agaronia

Lined & retic red clam to 1"

Jan 90

167

2-20-58

P.M.

El Cochori, S.

No really low tide.

S. on beach, hard sand, patches of clay esp. below low tide.

South nearly to low ridges, several miles.

Beach esp. well shell laden.

Mosinia, 1" to 8"

Jack knife - 2 species

Sea urchin

Tridacna

Pitar lymnaea

Turnicella gon.

Cardium - speckled

" - rosy

" - yellow.

Strombus gracilis

Cypodonta - spiny

" " - ridged

Crepidula, twisted

Coffee bean.

Thin white  1 1/2"

" " " ridged, complete

Thin rosy inside, circular.

Ridged yellow or maroon, to 1"

Anomia

Purpura - several

Black

Rock clam

Cones, 2 species

Top shell, tan.

Murex - long, spiny

Agaronia

Olivina

Archaeoloma

Pecten, shells

" - deep

Lamcardium - white

Sm, pink, 1/4"

" " umbonate, 1"

Cer. albostriata

Area

Poly. rectus

Calyptina

Winged *Agastis*

Wh. coiled land snail

Cer. muscorum?

Heterodon

Donax

Pholada -

Barnacles - red.

Jan 91
2-22-58 El Cochon S.
Same as Jan 90

Jan 92 El Cochon - N.
2-23-58 1300 - 1650 - had a very low tide

Taken on Playa Palmar, near Isla Morenos, in
shell windrows, from storms, where crossing
the Isla to Playa.

Plus live vegetation from town side of Isla.

- Mostly Pecten. Also
First valves for deep pecten
Gastropod, 2"
Black Murex
Pink Murex
Cruc. Squamos
Pink Clam - red
Black - Brown clam
Anomura

Smiths - Harry Palmer
Bill Gross & wife - near cotton mill
Verde Reguado & Peking
Mogroch & Peking
Pacencia - launch
with wind & sand.
women invited not eat in
of Peruvian - but on beach
or windward side
of foot.

Jul 93

7-15-58

El Cerrito, S

Same as Jul 90 & 91, but further inland

Jul 94

2-27-58

Soldado.

at Inlet, at low tide (mud.) and on lagoon
paralleling beach.

Inlet bars of clean sand & small gravel

Lagoon, clean sand with silt increasing
toward N. end, where it becomes predominant.

Alive - Melanopsis

Pink murex

Notica chemnitzii (gray)

Pol. ubi ubi. (white)

Cruc. spin.

Crep. onyx

Olivia spicula

Olivella

Strombus gus.

Arca - lge.

Scotch bonnet.

Ostrea - l

Shells - cone

Pol. reclusianus

Strombus - knoth.

Rugos. cl.

Turritella

Vol. dosimura

Arca.

Arca.

2-28-58 Inuq5

Soldado.

Same as Inuq4 yesterday, but further East as well.

In addition, got Sea porcupine - small mouse size
 & Black murex
 Mahogany clam shells.

At Camp site on Inlet, on rocks.
 Rock oysters (Chama)
 Crux. Spin.

See Wed.

Jan 96

3-2-58

El Cochori - 2

Along barren but smooth beach, north
from Pavilion, to sand point the (S) side
of Isla Muñitos. On Playa Holores.
Good sandy bar exposed, but not too
fruitful.

Alive -

Scorch bonnets, Found & mating? (In same hole)
Some just growing, to add outside lip.

Oliva speciosa

Agaronia

Polinices rechazaron

Crepidula

Clam - like roag, thin shell.

Beach -

Comus - black, slender

" - lines & dots, fat.

" - white

Pol. rechaz.

Cerithid - long

Lunetella

Peclen

Pretty pink razor valve.

Jul 97

3-4-54

El Cochon - n.

Same as 3/2/58. Jul 96 no to beach -
but intervening storm (SE.1) has flattened
& widened beach, and sections were quite well
covered with shells, especially at & near high
tide mark.

Alive -

Pecten

Yellow cardium - small.

Pitar lupanum

3 ringed clam

Cardium - small red.

Crep - twisted

Barroche - red

Olive spicate

Truthe.

flat white 2" - 1/2" young.

Lavela

dead - usual.

White malica -

Sm creamy 1/2 circular clam.

White dosinia in confusion.

Jingles with both valves.

Crb. creamy - on back above waves (at time)

Dec 98

3/5/58

El Cochovi, n.

Same area as Dec 96 & 97, but tide not so low
& beach more bare.

Find that the day after a storm is optimum -
later, shells wash out, are sandaled in or broken.

Crab - same as Dec 97,
Blue jelly fish - taken:
Star fish on sand.

Dec 99
3-6-58

El Cochovi, S.

South from Pavilion on clean hard sand
beach, almost to Clay cliffs.

Mostly small shells left after a tough days
battering since storm.

Many operculum of murex, few murex.

Test. Flat clam, very thin - white, somewhat rectangular,
with byssus.
Other thin delicate wh. clam -

Shells - thin Joleicardium

Junetella 2 sp.

Rosy cockle.

Murex - spiny

" - black.

Trig shell

Wh. crep.

Osina

3-10-57 Ju 100

El Cochori 5

Not a really low tide - collected storm swept beach.

Hard sand; South of Pavilion to clay cliff.

Done a previous collection here -

Plus "Corol"

3-11-57 Ju 101

El Cochori 5

Windy, tide not good -
Collected briefly, north of pavilion.

3-13-58 Gu 102

El Cochori, n.

n. fr Pav. to Isla.

3-14-58 Gu 103

El Cochori S

So. fr Pav. to clay cliffs.

Dec 104

3-15-58

Fair low tide.

El Cochon, N.

S. fr. Par. to Playa Dolores & Isla Morita
Few live shells.

Many hermit crabs.

Dec 105

3-16-58

El Cochon, S.

Drove S. about 10 mi on beach to lava point.
Stuck in sand overnight thru 2 high tides.

Collected S. on rocky point, sm sand beaches in spots.

Olive - large brown

" - specata

Herita

Biscuitis

Tops of large turbs.

Sm. dosinia - to 1 1/2"

Bubble

Aquaria

3-18-58

Gu 106

El Cochon S.

Off rocky point back toward Pavilion about $1\frac{1}{2}$ mi.
 Off soft sandy beach.

11-11-58

Gu 107

Venezuela -
bar

Thais biserialis - nice young. Under & on boulders.
Agaronia - present.
Olive - "
Pyrene - "

11-12-58

as above. 5⁰⁰ PM

Thais biserialis - on boulders
Agaronia - in sand.
Olive - lge br. "
 Flat slick varnish clam " "
Tivela - not taken
Turritella gonostoma - in sand.
Melampus small
 Sm. Arca

11-12-58 - *Gu* 108
 3⁰⁰ P.M. + *El Cochon* *H. 2m*
 Tide going out. Beach rather clean.

All dead shells.

Crucibulum spinosum

"

Tegula gracilis

Tan tops

Arctidesdoni

Crucibulum

Oliva -

Pecten

Picture clam

Sm, Pink umbones



Grigles

Murex - sm, spiny

Thorny clam. *Pitar*

Red lined clam. Some gone now - *Pitar*

Shore crab - long legs, large pincers. eyes on stalks -
 got between him & splash zone, easily caught.

Jul 109

El Cochoni 81
at Playa Solares?

11-13-58

3³⁰ - 5⁰⁰ P.M. Tide nearly out.

Oleiva pleista

O. brown

Agarvinia

Natica chemnitzii (gray)

Colyptra

} water edge

Inside above

nearest shore.

Shells only -

Pecten

Turrit

Jul 110

11-14-58

3⁰⁰ - 5⁰⁰ P.M. Tide ebbing.

El Cochoni 5

Nearly to "cliffs".

Strombus gracilis

Shells only:

Laevicardium elatum

Colyptra

Strombus gracilis

Wedgies - small species

Turritella - 2 sp.

Turris byronensis

Murex rostratus

" bicolor

Pholus

Fungus

Pecten voyden

" sp.

Cruculum 2 sp.

Aglossa

Archaeodon

Conus -

Dorsiventer - proximia white (1)

Crepidula ovata?

Raised clam.

Large clam

Sm. pink clam (1)

Sm. red umbone clam

Arca

Pattern clam, large.

+ plentiful.

180

See 111

El Cochori, S.

11-15-58

Tide ebbing, late afternoon. Collected at H.T. mouth
& into storm zone. From near "cliff", S. 2 miles
Beyond 2d fishing boat wreck.

Same as See 110, mostly, but more of them - very
little, if any, collected.

Shells only.

Aster

Calyptra

+ Lingula

Arca - 2

Crepidula - 2 sp.

Royal clam, sm.

Pecten Douglasii

Pecten sp.

Conus

Cruc. spinosus

Cruc. - ridged

Architectonic

Notia

Tridacna laponensis

Rosy long clam - Tellina?

Rosy umbellus, sm. long clam.

+ Strombus gualanensis

+ Pitar laponensis

Lucy clam

Murex nigritus

" bicolor

Heterodontus

+ Plover

Turritella

Jigzag with heavy clam

+ Laevicardium clam

Pholus

Strombus - spiny

" - murex.

Agaronia

Oliva - brown

Sm. round clam - size dime

Long red center clam O

Dec 112

181

11-16-58

El Cochon S - or
Cruz Piedras, N.

Preponderance of *Crucibulum* the end of beach.
Also many good *Pitar ligandera*.

Dec 113

11-18-58

Cruz Piedras, S.
to Sand Spit -

Dec 114

11-20-58

El Cochon, N. to
Moor Island.

Found 3 large Sand dollars at water edge, near
wrecked fish boat.

Preponderance of *Pecten* this area.

Dec 115

Venus's

A Bar outside Inlet -

11-21-58

Olive-brown

Agarum

Gyneria - *Chemnitzii*

Strombus gracilis

Crithidia -

B

Sand & silt flats in lagoon.

Dosinia - sm. white

Ridged clam

Ridged clam

See 116

Soldado Bay

11-24-58

Low tide about 1500.

Worked outer sand bars - found live -

Olivea - lge
Conus - lined

- pallida

Olivella

Murex bicolor

" neyrites

Cosin - Scotch bonnet

Turritella jones.

Arrow sand dollars.

Gegaronia

On bars - some live - just inside Inlet &
opposite camp ground, alive -

Natica - gran - many.

- nebulosa - 1

Vermish Clam

Sm dracina

Heavy clam.

Melampus - small

Ayamia

Olive - lge

Olivella

Caeriacanthus - 1 valve only

Cozy clam - shells only.

Crepidula

Arca - 3, live

Bayed clam

See 117

Soldado

11-24-58

Same as 116, but at Inlet only.

Jan 118

183

11-26-58

El Cochon - N.

Playa Polosa

At low tide, worked big bar at bend at "

Olive -

Black Murex, large, eating -

Fringed clam

Olives

Agaricaria

Most shells from near Moon's Island.

Jan 119

El Cochon, S.

11-28-58

In vicinity of "Cliffs".

X murex most plentiful. All beach shells.

XX Strombus gracilior

X Loricaridin elatior

XX Tridacna hypnensis

X Pecten lupanarius

XX Turritella gonostoma

X Architectonica

Crepidula 2 sp.

Blk murex

Periwinkle

X Pecten & heterodon

Procinus - 1 sp.

Cones

Spiny murex

XX Razor cockle

Agaricaria

Olive

Pecten circ.

Pholids & Angel wing

Razor clam

Crepidula onyx?

Pecten vogelensis

Cer. albavodorum

et al.

See 170

See 112

Cruz de Piedras, N.

11-30-58

From end of road, n. along heavily eroded beach to vicinity of "Cliffs".
Not much new stuff.

Shells only.

xx *Cruc. spinosa*

x " *ridged*

x *Jingles*

xx *Tricola byson.*

Pecten circ.

Olive - brown

Agarionia

Murex - sm.

" - *Pink*

x *Circa*

x *Dorsinia dunkeri*

Crepidula vryx

" - *white*

Circ. clam, $\frac{1}{2}$ " *orange*

" " $\frac{3}{4}$ " *white*

Sm. dist.

Pisula (Tricola)

Top shell

Thorny Pitar (Lupanaria)

Strombus grac.

Pitar - ridged.

See 171

12-4-58

El Cochon - n.

Collected mostly at upper tide mark.

Many *Sm. dist.*

Strombus grac.

Pecten vryx.

" *circ.*

Cruc. Spin.

Lucicutia

Tricola

Jingle

etc.

SO Shell only

Dec 122

185

12-5-88

Soldado.

Env. tide of +0.2, but lagoon drained well.

A - Outer sand bars - outside Inlet.

Murex SO.

Thorny Pitsi deep.

Knobby Strombus SO

Str. groc. SO

Pink murex SO

Pecten vag. "

Cruc. spin. "

" retzgi "

Comes reg. alive & SO.

Thin bicolor alive

Crep. omyx? SO

Sm. dial SO.

B. Baro just inside Inlet.

Kocha - bad commensal shrimp.

Sm. crab

Vannish clam SO.

Hermy " " & alive

Rayed " "

Moskwa dunkeri

Notia chem. alive

Strombus groc. young "

Melagena - young "

Retzgi clams "

Agarum SO & "

12-6-58 Gu 123

Soldado.

Same as Gu 122

12-7-58 Gu 124

Soldado

Same as Gu 123 + 122, also

In silted sand bar with pools, in mid lagoon.

- 50. *Dorsina*
- 50. Razor clam + alive
- 50. *Ekibi* clam. + alive
- 50. *Vermicel* clam + alive
- Melampus* - alive - sm. turned.
- Metia* Chene - large, alive.
- recluziana* - olive, sm.
- Pygmaea* + alive

On dead wood -

area -

al. str. muscum.

Cruc. spinosum

12-8-58

Su 125

L.T. - 1.2

El Cochon, n.

A Collected bench, H.T.; from Pavilion north to fishing boat wreck;

B. Then collected bar & shore, sand flats with some silt, at S. end of Playa Holoch.

B. Black murex
Pitar lupaneros
 Fringed clam
 Sm. Oliva
Laevicardium
Agaronia } alive.

A. Mollusks.
Narrow caudo
Crepidula
Licola
Mosina
Strombus
Laevicardium
Pecten
 " *vogelensis*
Pinna
Arca

Su 126

12-9-58

Four tide ~ 1.5

El Cochon n.
To Isla Morena

Same as Su 125, but many *Laevicardium* alive & backing surface.

Also dead *Pinna*.
 Star fish in sand.

3 Clumpo size plate, at Island, of *Ar. Ster. muscorum*

Dec 127
El Cochon N. - Isla Morena.

12-10-58

Same as 125 & 126, but got N of Island briefly
on sand-silt flats.

Dec 128
12-11-58

Isla Morena
El Cochon N. & S.

A - N. of Isla Morena - others got many large
Black murex &
Melsungen

B - On main flats from "Hook" toward Empalme.
Cruc. spirogon on every rock & dead shell.
Ruged clam
Rosinia - sm.
Sm melsungen.

C. Drove S. of El Cochon to near "Cliffs"
Spring Pitar (Liponares)
Grouper gracilis
Lucha liponensis
Black murex
Rosinia - large

June 129

Cruz de Piedra

1-28-59

N. toward El Cochon

also

Agaricus

Dandelion

Chives

50. Mescal fruit

Orange-belt found at Julet, Solida

June 129

12-15-59

El Cochon.

On beach, S. to Stump Arroyo.

Beach much changed - sand of lower 2/3 washed out & replaced by flats & shallow lagoons & tide pools & run off. All firm sand, shallow surface silt (if any).

at low tide (0.5) at near turn, some

Pitar lupanaria burying surface.

Murex - shells only

50

Archilectonia

"

Laevicardium elatum

"

Tridacna gonostoma

lined Cores

Dec 130

El Cochon S. 1/2

12-16-59

Playa Morro

S. of El Cochon to Isla Morro on sandy
flat 1/2 mi S. - little surface silt if any.
Tide 0.3.

Black Murex, feeding on:
Rosinir

Alvies

Natica chem. (grey)

Fringed clam

Crepidula on Polymes

S.O. Strombus gracilior

Pitar lupaneros

Pink Murex 1/2

Dec 131

El Cochon S.

12-16-59

from Arroyo Slings

Beach wide, flat, hard sand, with occasional
beds clay showing thro. Tide 0.5' Some wind.

S.O. - only live shells seen few Turritella.

Strombus gracilior

Turritella gonostoma.

Purpuraria elatum.

Pitar lupaneros

Crepidula spinosa & others

Crepidula uvaes in bl. murex

" onyx?"

Bubble - large.

Black Murex

Pink ..

Blarina

Architecton

Rosinir

Cones

Clam

Murex "Terrestris"

Dec 132

191

El Cochon - N.

Moore Island

12-27-59

plunge north beach to Morris Island.
collected mostly on sand flat at point.

50 Pecten
Cruc.

Alive Olivella speciosa
Vermish clam
Chione girdia

Dec 133.

12-28-59

El Cochon 5.

to near cliffs

Wide hard flat beach - tide lagoons (shallow)

At low of tide at dusk, -

Agarionia - 5

Palaemonetes - "

Fusinus or Knipfostia

50 Lucetella - 1 alive - not mated, shorter.

" gonostoma

Pecten

Cruc. 2 species

Wang, Xi

May 1

12-1-53

Mazatlan
H.

From Mazatlan, north to Garvota along
sandy beach, clean but mostly narrow & steep.

May 2

12-2-53

Mazatlan
H.

Same as May 1.

May 3

12-3-53

Mazatlan
S.W.

South of Causeway from Mazatlan, west
to Faroe Island.

of note: Live
Males
Cypraea

183

May 4

Mayethan

12-4-53

North of Gaviota (Pavilion) to lagoon
beyond rocky point (several miles, by dirt
road East of fresh water lagoons.

Sand bars, clean, facing ocean.

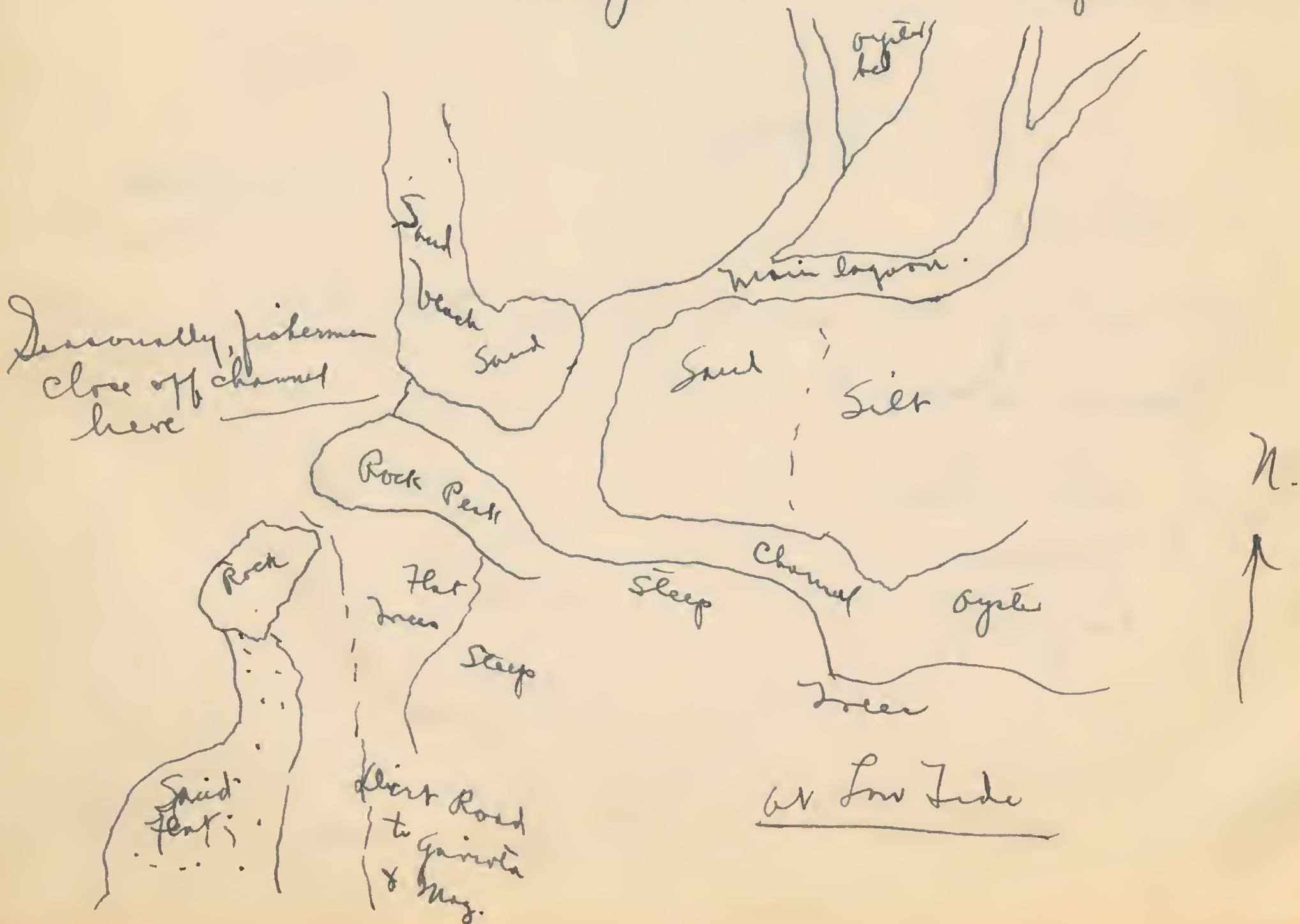
Sand flats, silted, in lagoon.

Oyster beds, spotted.

Rocks outside inlet, open to sea.

May 4 A.

Oyster bed,



May. 5

194

12-5-53

Mazatlan.

At Old Fort, fronting Old Harbor.

Between Yates & Casa Marina (old fort)

Boulders & cobbles, mostly lava, on sand
& gravel strata.

of note -

Canis

Canis

- small, alive.

May. 6

12-10-53

Mazatlan

Same as May 5, mostly east of Old Fort.

May 7 - ~~7-9~~

Also see #18 ✓

7 C-5 Nov 511

Magellan

Gaviota Beach, from Gaviota townward
on sandy beach, High tide line, to just beyond
Cimmeron Point. Steep beach, clean sand.

Mitra lens

Gorgonids

About 5 kinds.

Conus nut?

Mussels

Pitar

Sivella

Pecten - lion's paw

" - circularis?

Cardium - heavy ridged

" - lt. ridged

Petricola?

Trinia - large

" - sm.

" - speckled

Astraea mex.?

Rock oyster - Chama?

Northis northis

Cruc. spumosa

Cruc. - ridged

Helicodonta

Round quail, sm

Pholad

Cornu

Brown clam.

Chione, heavy sculp.

Crep. orange

Crep. white

Big white one angle clam.

Calliostoma

Twisted Cup + Scaevola

Brucella - 2 or 3 sp.

Worm tubes, brown, shiny

May 8

Magellan.

Alonso #7

6 Nov 52

at Camarones Point, on rocks - Jones 293.
not a minus tide.

White bottom so ray star fish
Knobby clawed crab
Lanqueto - small.

Acorn - (knobby)
Tiny black gastropod,
lifelike mounted.
Knobby, wh. " "

Cornice, immature

Chitons

Scallop or chitons

Turbo

Pyrene

Gastro - black inside

" white " heavy lip

" stubby, 3/4", white. Knobby.

Star thin wh. pale - Pinctada?

Limp shell - sm. Gt. shell?

May. 9

Magatlan, Mexico

8 Nov 54

Collected in small cove just W. of Cofe "Puerto Angel"
 Cobble to boulders on shallow sand-gravel strata
 over bed-rock. Protected from direct ocean wave
 Jones 2 4 3 Between Chile Pt & Tiburón Pt.

Astraea

Knobby star

Sea fan (gorgonid)

Star fish like

Star pencil scrobins

Crab - murex

Crab - Flat, red claw

Neosimnia (in sand, loose)

Cowrie, sm., sharp edged.

Cowrie, sm. yellow & brown - C. murex

Pyrene murex

Pyrene -

Bivalve shell -

Rock oyster (chama?)

Astraea, lge, loose.

Arca solid.

Crepidula on cowrie

Keyhole limpet

Acanthina - knobby (yellow murex)

Alata

Dory shell?

Crepidula brye?

Cassis Costalium

Pediola

Snake-like Eel

Hermit Crab, red & black.

Squirt-tube

" - leather

" - round.

May 10

9 Nov 54

Same as 8 Nov 54.

Add

Tumtella-like.

Cummings

Pink clam, sm.

Arcos -

Harpa -

Crepidula argyl?

Acmea

Alata

May 11

Mazatlan.

10 Nov 54

Navajo Point - Headland up coast (2.1) from Los Gavilanes, at Inlet to Oyster Ragoon, now sanded shut.

A - Rocky points of lava conglomerate, very rough, cut by narrow fissure inlets. f. 2-3-4

B - S. of point on flat sandy beach, wide, clean & hard.

A - Verita

Fittoria (Ficzar)

Acantha (tenothy)

Gorgonids - just at f 4 & deeper

20 Ray star fish

Acantha - ragged-like, flav.

Keyhole limpets

Ostraea

Chama (red inside)

Mussel

B. Sm. @ keyhole sand dollars.

Olivella - black; black & white; &c

Slender white gastropod, with above.

Harpax

Lionax

Trocha

Wh. clam, like above.

Natica, flav.

a - Gastropod (heavy lip) Thais haemastoma biserialis. Blainville
 " - (stubby)
 Pyrene fossata
 1/2" gastropod, chry.

May 12

200

Magatlan

Nov 54

Same as May 11, especially S side of point (A)
and sand bar (B)

Live "B" Sharp $\frac{3}{4}$ " gastropod

Pistol - spiny

Agaricoid

Twelve

Flower

Olivella

Crab.

Acmaea - (luna)

Acmaea - (knobby)

Live "A".

20 Ray star.

Red claw crab.

Rock crab.

Red gorgonids

Yellow "

Fans - yellow.

Olivella - black etc. - around gorgonids

Acmaea - huge specimens. Knobby.

Needle like sm. gastropod; Ground gorgonids, in sand pools

Butterflies

Mussels

Pyrene

(B) - Juicy Sand crabs (Emerita?)

Keyhole limpets

Limpets

Chama

May 13

201

Mazatlan

12 Nov '54

Collected at

"A" Camaron Point.

"B" S. of Pt. Javalos.

"A" On boulders on bed rock &/or sand

Coris - lge.

Conus - sm. brown.

Pyrene major

P. minor?

Cebble *Trinia*

Alatus

Crepidula

Ancoris

"B" - "A" on rocks - *Mytilus*

Pyrene

"B" *Tringa* - on sand flat.

Agarionia

Donax

Uvula

Pitar - thorny

Flat *Tringa*?

Crab

May 14

Dec.

1955

Sand beach, Gaviota Beach - north from
Camarone Point. Much sand washed in,
beach now fairly steep. To North Point.

50.

Astrea iridescens

Donat - or Heterodonat

Cholad

Trinia - large*Pitar lupanarea*

Cone - small

Trinia? Rayed*Calliostoma**Cardium* - many rayed.Cone - *Cervinella* - Port.

Jingle

*Cruc. spin.**Bast. n. n.* - red.*Cruc. radiata*?*Nyctis**Polinaria* - flat.

Pink umbones close - sharp pt.

Lunella?*Herita* - no teeth

Alive

Donat

*T. biserialis**Hydrobia ulvae* - large.*Fittorina ziczac* - small.

May 15

203

Dec. 8 1955

Cameron Point - on rocks.

Pyrene

Thais patula -

T. biserialis

Keyhole limpet

T. single long spines

Anachia

Margarites

Mytilus

Arca 

Crepidula

Solenostoma pallida ?

Clam - colored -

Heterodonax

Olivella undulata.

Heavy clawed crab

Sand crab - soft shelled.

50.

Callinectes

"

T. biserialis

Jackknife

Cardium - spiny

Clam or Heterodonax

Trinia

Comus

Ostrum

Pitar hypocausta

May 16

204

12-30-55

Near Marine Hwy, E of old fort - gravel, boulders
& solid rock.

Very low tide.

Cornus

Cornus - sm. flat.

Crepidula on Cornus & smooth Pyrene

" onyx?

Long shell

Cummins - lamp shell ☉

Astraea

Thin basinalis

" - yellow

Basket shell?

Keyhole limpets

Anachis

Margarites?

Pyrene major

" - smooth.

Speckled cerith?

Large Trivia

Arca ~~gracilis~~ solida

Aletes

Star Fish

" "

" "

Gorgonid - red.

May 17

at Inlet to lagoon. 12/23/58

Rock, n-7 for growth

A. on outer bar.

~~Heterodonta~~ alii
Oyster (foss) shells.

B. On rock -

Gemmae

pot-like pores of both species noted.

Shells Visceruli

Keyhole limpet

Chelons

30 Ray star fish.

Mussels

C. Bar in lagoon. Clean sand.

Jack knif clams, shells only.

No marks by crawlers or burrows.

May 18

12/27/58

Faroe Island.

- A - on rocky point, outside of jetty.
 B - Cool near old fort, on rocks.

A Limpets, blue
 " Keyhole
 Flat shells.
 Thin bivalves
 30 Ray stars.
 Knobby stars, small. "B", not A

B. Cowrie - small.
 Hair
 Pygones
 Prototheca - S.O.

May 19

1.

Faroe Island

Same as above -

Also Crabs

May 20

1 - - 59

Gavaldos

On rocks n. of rocky point. Lava, esp. conglomerate. Med. low tide. Mostly collected in barnacle area, above red coralline.

Limpets

Chitons - 1

This potula pusa. Keep in separate containers, drain off sea water & stain several times.

One white gastropod, found with - biserialis.
Biserialis.

30 Ray stars.

MacFadden 21

208

Cove.

Fri. P.M. 21³⁰ 4⁰⁰

1-9-59

Low tide, good. Sea not bothersome.

On boulders & cobbles on gravel bed, in small cove.

Collected best out where red Coralline began to
cover rocks & cement together.

Algae.

Pyrene +

Black Murex - 1

Flared " - 2

Thais - large, flat spine -

Yellow mouth Thais.

- pallida??

Spotted Trivia

Trivia - 3, under rocks in water. Swimming slowly.

Crepidula - flat white

1/2 empty shell.

Chama.

SD.

Proto. danae S.O.

Area solida

Sponge? white, with crater.

Crab.

Star fish - 4 species, 5' rayed.

Urosalpinx - 1 scrubby.

Note - In gal. jar, most shells partly cleaned -
but Cowries intact.

May 22

1-10-59

Marine Cove.

Same as May 21, but included rocks & pools
toward Marine Hdg.

Alive - *Conus* max - lge spec.

Flat *Crepidula*

Ostraea 2 shiny

Thais bascula

" - flat spine

Cossis caerulea

Arca solida

50

Juntila - stubby.

Thais - white mouth

1600 shell

Pyrene.

Chama.

Luna - 1

Conus - young *ceruella*

" adult & half grown " *Mahogani* "

Flat clam solidly on rock bottoms, like "peck oysters" but small.

Worn shell.

Keyhole limpet.

Starfish

Hydrella 3

5 arms, 4 knots

Gorgonid

Sm. green "anemones"?

Note - See May 21

Since 1914

San Blas
S.B. 1

210

12-7-53

San Blas

On pure sandy beach, open to sea, at
resort area beyond town.
At moderately low tide.

S.B. 2

San Blas

12-8-53

By boat across Inlet to lagoon, to
Coast & rocky point on which stands lighthouse
(Faroe)

A Rocky Point, boulders large & rounded,
sanded in.

B Clean sandy beach both sides of Point.

C. Sand bars, heavily silted, north bank
of Inlet & lagoon.

Collected north to mud bars.

Note - *Triumphis subrostrata* - woods.

San Blas 3

211

23 Nov 1954

At Matanchen; by road, dirt, turning S.
several miles out of San Blas, thro
swamps 3 km (2 mi.) to Bay of Matanchen.

Sandy cove along north arm about 1 mile
from resort buildings - clean flat beach, hard sand.

At mid tide, rocks on shore between cove &
Matanchen. On them, some growth mostly oyster,
chous, nerita, & crabs.

Sound bar. Cerithium - knobby
Pitar (long spines light, fat.
Pitar (short " ; brown, slender.
Big white clam - 4" x 6"
Sm " " - similar - fuzzy end
Agaricus
Lionel
Littor Cerithium -
Tellina (Pink)
Tivela
Brown clam - sm., ridged.
Cerithium - sharp.

Among rocks -

Turritella - shell only.
Prototheca - super s.o
Black Murex - very black

New - sm. pink clam, fat, long.

San Blas 4

212

24 Nov. 54

Matanchen Bay -

On flat sandy (clean) beach from Resort S. to rocks. 3 miles.

Collected -

Pitar - long sp.

Agaricus

Alona

Livella - jar

Livella - clean, light.

Wh. polynicus & hermit crab

Arca

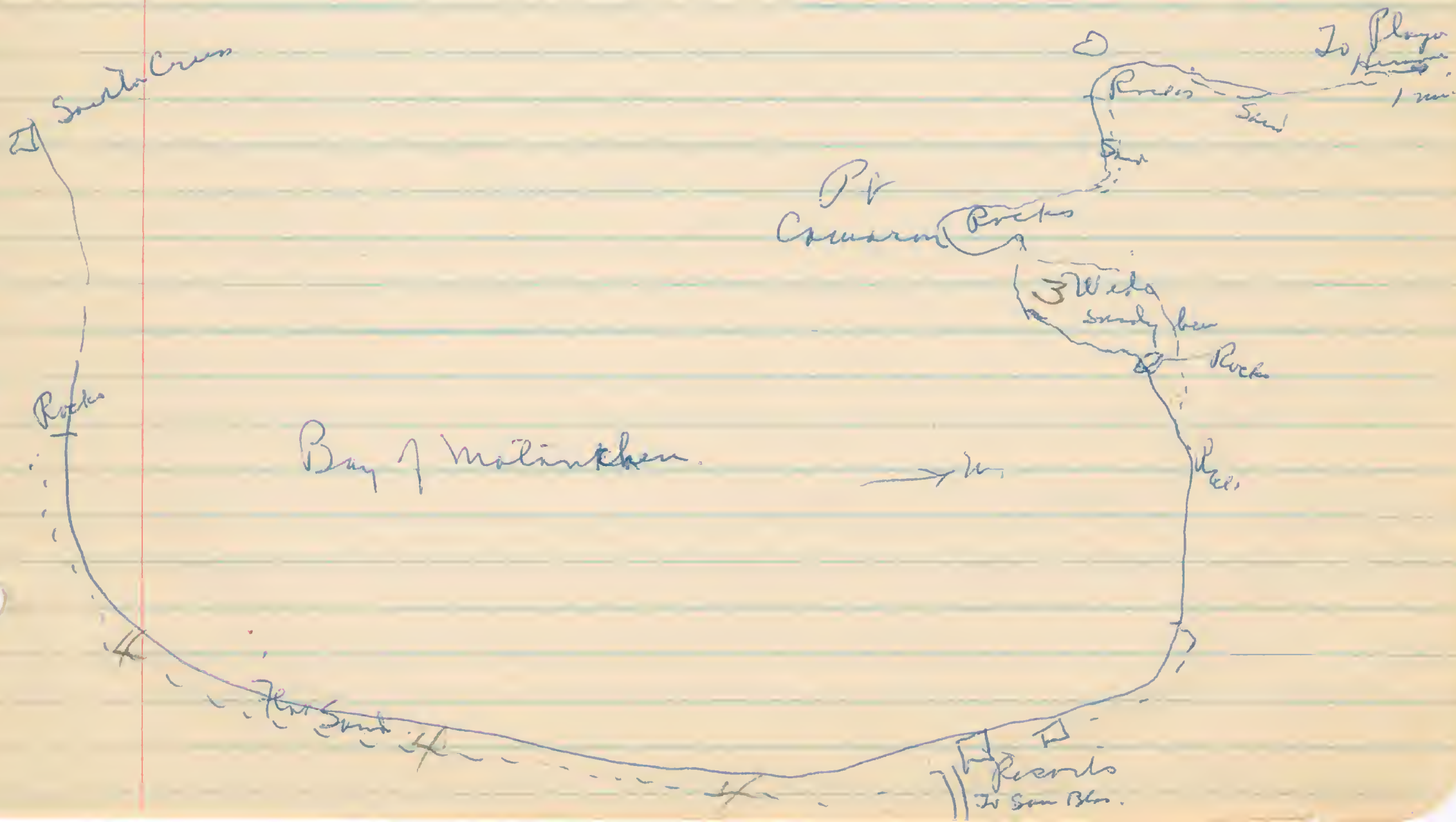
Olivella - Bl. & Bl + white

Pecten - flat valves only

Tellina - pink valves

Arca

Heterodonax



25 Nov 54

Motanchen, out (5) of San Blas.

Some sandy cove beach, hard clean sand,
as collected San Blas 3. Identical ground covered.

Alive -

Large white angular clean *Thaetulla ciolata* - gray

Twelve -

Pitax? - grooved

Pitax, thorns long

Pitax, thorns tiny.

Poros

Agarionia

Alvella down?

Sea (3/4") @ white clean.

Pink clean - like Jellies

Yellow gastropod - stubby, yellow. "

Attained Cerithium

Cerithium (aol. like)

Cardium

Northia Northia - alive!

Protolthra - superior; "

Grey polinices

26 Nov 54

Motanchen, S.

Same broad flat sandy beach as SB 4,
but mostly further S. & a lower tide.
Rocks at S. end where beach road turns
inland around mt., rather barren aside from
Solenostoma

On beach -

Polynices - flat brown.

Trinaphis, *trinquet*.

Agarionna

Alivella

Polynices - grey (notica)

Trinela - color variations & rays.

Pitar - long spines

Pink *Tellina*?

Ear shell

Arca

Wh. angular 3" clam

SO. *Pecten* valves

Cardium.

Mytilus

Small crab - *emerita*.

White clam, flat end,

San Blas 7

215

12-13-55

Matauchen - west toward Camaron Point, to
Cove; from resorts.

Fls sandy bar, quite clean. Protected.
Alive

Ear shell

Big white clam, angular.

Pitar - leporatus

Pitar roseus

Urosalpinx - large, heavy wh. lip.

Crithidia - white spots

Tellina - pink

" - white

Yellow gastropod -

Brown "

Agarion

Natica chemnitzii

Olivella undatella

Solenostoma pallidum

Thin brown clam

Tridacna

Sharp pointed "Donut"

Sand starfish

Brown sand dollar, large, circular

Sea mouse - spiny sea biscuit

50. Heterodonta?

Pecten

Ostrea

etc.

San Blas 8

216

12 - 28' - 55'

Matanchen Beach - South. Tide half in.
Flat sandy beach, quite clean.

Sea Snake alive - near upper tide limit
high tide. Rather helpless out of water. Larger
than one Squires gave me at Magellan
but seems same species.

Also

Round -

fl -

long, slender,
lined.

Melampus -

Do Bolen -

San Blas 9

217

12-26-55

Matauchen - west & n from resorts
to cove - sandy flat.
Same as Sp. 7

Northin Northin?

Rossarius - eye -

Horse

Tricolor

Like brown narrow clam.

Red Zeller

Petticost chime

Agronia

Yellow gastropod, scarce

White angular clam

Sm. " 

Ear shells.

Black murex

Pitar lymnaea

Clam - 

Wh. cupidula in black murex

50

Cardita

Pitar roseus

Pecten

Hot shell.

Star Fish - red bottom.

Sea Mouse.

San Blas 10

214

12-26-55

Melaneche.

S. from resorts mostly on
towards fishing village Santa Cruz.

Protokoa?

Thais haemastoma.

" " biseriata

Pyrene

Arca

Top shell - not undec. Color at umbilicus

Chama - bright color.

- pallida

Crepidula

Top shells

Murex

Lamp shell - sm. @ brown, fringed

SD

Ostrea iridescens (viridula)?

Chama

Top shell

Cardita

Protokoa


San Blas 11

219

12-27-50

Matauchen - S. to cliffs - worked
rocks to Fishing Village.
Boulders & sand.

Wavy top -
Chama
Protochoca
Crepidula

Cummings - lamp shell 

X pallida
Cardita

Sea Tortoise in shallow water - not well.
Look barnacles, let it go.

50 Ostrea virescens
Cup & saucer
Keyhole limps
Chama
Trop shells.

220

SB 12

1-17-59

Matauckan

On rocks, coated with silt, on n. side
bay, from end sandy beach, 1/2 way along
n. side toward ocean.

50 Oysters, shiny
" " small.

50 Chama

Black murex, 109, clean, nice spires, very
spiny & black.

SB 13

1-18-59

Matauckan

A Same as above (on way back from bar) but whole
length of rocky n. coast.

B - Sand bar, new, across from Pavilion.

A - Chama.

Black murex - 88

B - Sm. @ clam. Pinkish.

N. Chemnitzii

Pyrene.

Ms. - Manuscript

Mz 1

221

Dec. 17, 1955
" 18

Manzanilla

On broad sandy beach, with alternate
bands yellow & black sands; clean cobbles
above high tide mark; at low tide a rather
abrupt drop off. Semi protected bay (from
N. & S.)

Olivella

Sm. gastropod

Flouret - small.

Sm. mottled clam.

Sand dollar, thin, green.

My 2

12-18-55

Beyond sandy beach (Santiago Bay) on n. side
around to lake & stream and cobbles to boulder.

In zone 1 & 2 - not a good low tide -
possibly 0.0' to - 0.2

Limpets - blue - med. 3 1 & 2

" - white " "

" - ribbed " "

" - red " 2

Verita - no teeth

Littorines - 3 - 1

Mytilus - 3 2 Bed on bottom - also on rock bottom

Cerithium -

Crep. nica in dead murex

Thais biserialis

Arca - med.

Margarita

Pyrene - sm

P. nica

Anachis

SD. Nuc. spiradula

Long, white

Foot small, long.

Wh. corals.

Astraea

Conus

Mz 3

12-20-55
12-19-55

Manzanilla - around S. & W. end of town. Dirt road from end of St. past Market, around lagoon to Ocean Coves.
Heavy rollers, rocky points making sm. coves.

Q 1, same upper Q 2
(Mytilus in lagoon)

Littorines

Merita - touched

Xenophora - 1 alive,

{ Xenophora?

SD. { Cup & Sower; looks outside, like Galraes. Brown center
Mytilus

SD. Found snail - lined.

" " - snout, white

May 4

12-22-55

Manzanilla - Santiago Bay, on north side -
followed sand beach west, past cobblestone beach
& boulders, around cliff to abrupt shore, solid rock
with gravel - cobbles - boulders & large offshore rocks.

Beyard (W) May 2
of 1, 2, possibly upper 3.

Murex - washed ashore alive.

Conus - purple

Thais pulchra paucica

T. biserialis

Vermetus - yellow teeth.

Astraea -

Chama -

Patella mexicana - on flat tops of rocks, were washing over.

Cypraea - brown, orange tips. Rare.

SE. *Conus* mud

Hyponis - broy shell

Pectolium.

Sea urchin tests

Cypraea - flat, small, common type.


Coral

Cerithium - large.

Mz 5

12-23-55

Same as Mz 4, & further out (W) to cliff
On rocks & in cobble.

- Thais galatagausa - extra large. Breeding
- 50 Cerithium - lge.
- 50 Crencibulum - thin shelled
- Conus - dark - purple edge.
- " - dark lines on orange
- " - pl. white
- 20 " null -
- 50 Cardita
- 50 Acanus - ribbed.
- 50 Cassis coarctata
- 50 Tree snails
- Keyhole limpets
- 50 Wedgie - sm.
- 50 Flat spired Thais
- 50 Pyrene major
- 50 Coral - 2 kinds
- Astraea
- 50 Leucozonia
- 50 Cassis
- 50 Long worm gastros
- 50 Patella melanura
- Cypraea - flat bottom, sm.
- " - orange ends.
- Anachis - lge.
- 50 Sm. @ wh. clam
- 50 Keyhole limpet -  - Tringula, new.

Algae





Natica chemnitzii



Melampus



pallida



*Polinices
recluzianus*



P. ruber



P. ...



... ..



D. ...

RNIA ACADEMY OF SCIENCES

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THE SCIENCE MUSEUM

THE ALEXANDER F. MORRISON PLANETARIUM

THE STEINHART AQUARIUM

November 17, 1957

Colonel Lee O. Miles
P. O. Box 180
Bodega Bay, California

Dear Colonel Miles:

On September 15, 1955, we received from you five fishes "taken south of Cordell Banks -- 90 fathoms by dragboat 'Faymar,' Capt. Max Carlson, skipper -- June 5, 1955," as follows:

1. Raja binoculata Girard (called "big skate"): young male, 168 mm in total length, with a conspicuous orange ocellus, sharply outlined with black, at the base of each pectoral fin.

2. Nemichthys scolopaceus Richardson (called "snipe-eel"): adult, 1,588 mm in total length. This fish has long, slender jaws like the beak of a snipe, and a very long, threadlike tail. It is also remarkable in being darker on the belly than on the back. In Clemens & Wilby's book entitled "Fishes of the Pacific Coast of Canada," those authors stated of this fish, "Length to 2 feet 7 1/2 inches." Your specimen, however, is 5 feet 2 1/2 inches long. The scientific name of this species has been a matter of controversy, and we have hesitated to write to you about your fish until we could decide what name to apply to it. We have now concluded that we should follow the French ichthyologists Roule and Bertin in using the scientific name given above. This species is of cosmopolitan distribution and has been recorded from the Atlantic, Pacific, and Indian Oceans and from the Mediterranean Sea. It has been said that it does not seem to occur south of the Equator. This is the only specimen of this species that we have in our scientific collections, and, so far as I know, it is the second specimen ever taken in California.

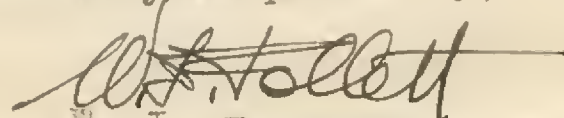
3. Leptocottus armatus armatus Girard (called "staghorn sculpin"): small adult, 122 mm in standard length.

4. Stellerina xyosternus (Jordan and Gilbert), called "pricklebreast poacher": small adult, 76 mm in standard length. This little fish has eight rows of sharp spines extending lengthwise on the body. Most of the fins are blackish. We have only a few specimens of this species in our collections.

5. Anarrhichthys ocellatus Ayres (called "wolf-eel"): halfgrown example, 526 mm in total length. This fish derives its vernacular name from its tremendous dentition, which it uses for crushing the sea-urchins and sand-dollars on which it feeds.

We are indeed grateful to you for this fine collection -- and most especially for the snipe-eel. As we are attempting to build up a complete representation of the fishes of California, this contribution is of particular importance to us.

Very respectfully,


W. I. Follett
Curator of Fishes

WIF/LD